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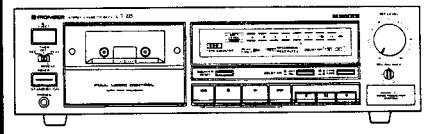
The future of sound and vision.

Service Manual



The above illustration shows the model for the U.K., European, Saudi Arabian and Australian. The illustration shows model CT-225.

ORDER NO.
ARP1696

STEREO CASSETTE DECK

CT-S305
CT-225
CT-225-S
CT-S405

CT–S305, CT–225, CT–225–S AND CT–S405 HAVE FOLLOWING VERSIONS:

Type	Applicable model				Power requirement	Export destination
	CT–S305	CT–225	CT–225–S	CT–S405		
KU	O	—	—	—	AC120V only	U. S. A
KUC	—	—	—	O	AC120V only	U. S. A and Canada
HEM	—	O	O	—	AC220V, 240V (switchable) *	European continent
HB	—	O	—	—	AC220V, 240V (switchable) *	United Kingdom
HP	—	O	—	—	AC220V, 240V (switchable) *	Australia
SD	—	O	—	—	AC110V, 120V–127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market

*Change the primary wiring of the power transformer.

- This manual is applicable to the CT-S305/KU, CT-225/HEM, HB, HP, SD, CT-225-S/HEM and CT-S405/KUC types.
- For the CT-225/HEM, HB, HP, SD and CT-S405/KUC types, refer to pages 37-39.
- The CT-225-S is the same as the CT-225 except for the color.
- The CT-225 and CT-225-S are the same as the CT-S305 except for the color.
- CT-S405 was created by adding the HX PRO circuit to CT-S305.
- As to the mechanism descriptions, refer to the CT-W510 service manual (ARP1697).
- Ce manuel pour le service comprend les explications en français de réglage.
- Este manual de servicio trata del método ajuste escrito en español.

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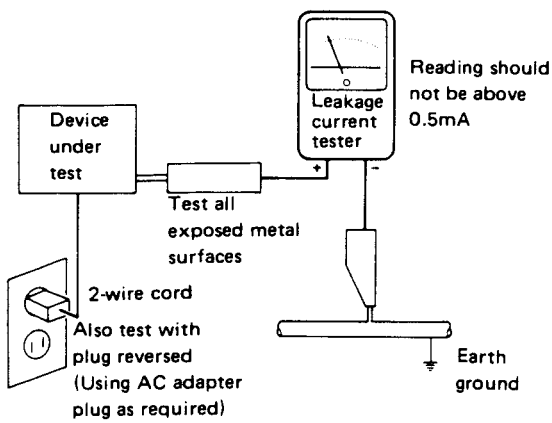
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. DISASSEMBLY

• REMOVAL OF HEAD AND PINCH ROLLER

1. Remove the screw ①.
2. Remove the screw ② (azimuth adjust screw) and the screw ③.
3. Remove the washer of the pinch roller.

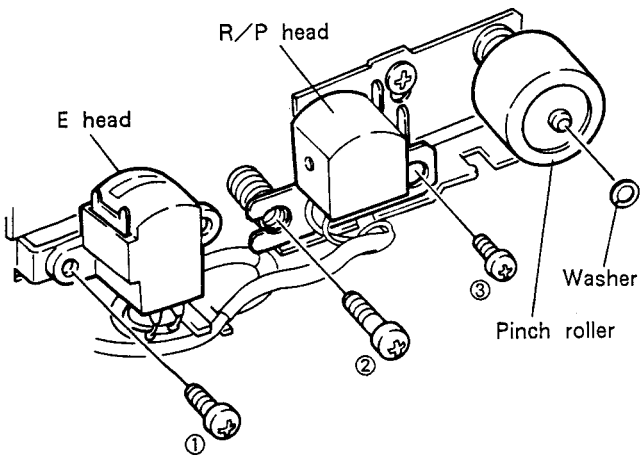


Fig. 2–1

• REMOVAL OF REEL BASE

1. Pull out the reel base assembly by inserting the tweezers into the groove portion Ⓐ. (Snapped portion is disconnected by extending the groove portion.)

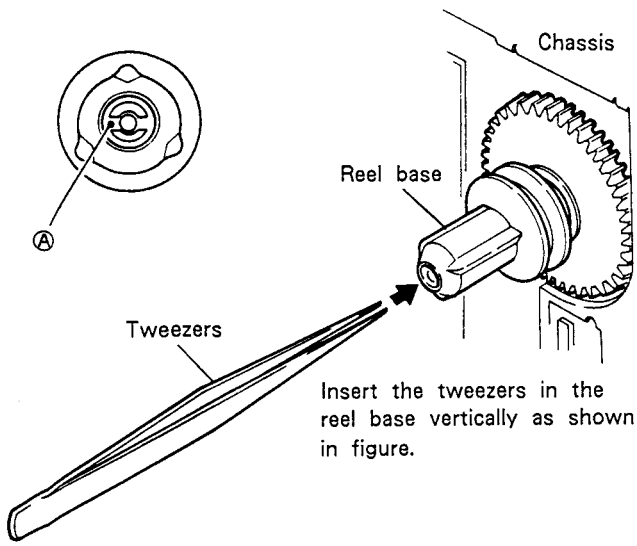
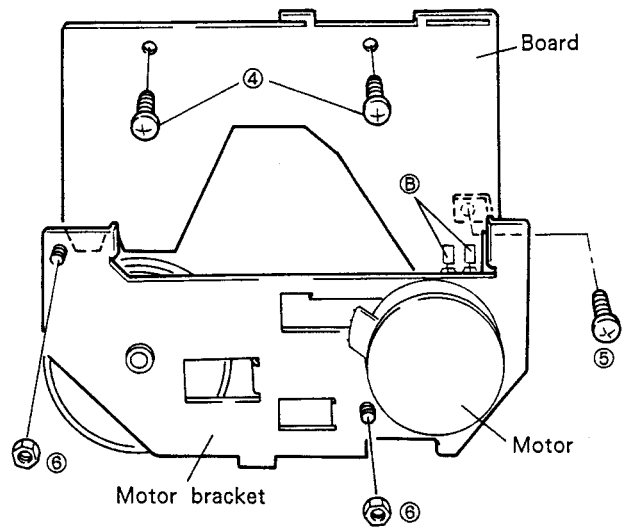


Fig. 2–2

• REMOVAL OF BELT AND MOTOR

1. Remove the soldering section Ⓑ of the solenoid.
2. Remove two screws ④ holding the board. Pay attention to the leaf switch (Play switch) when raising the board.
3. Remove the screw ⑤ and two nuts ⑥.
4. Remove the motor bracket and the main belt.
5. It is possible to replace the FR belt in the state removed the motor bracket.



Rear side of mechanism section

Fig. 2–3

6. Remove two screws ⑦ and remove the motor.

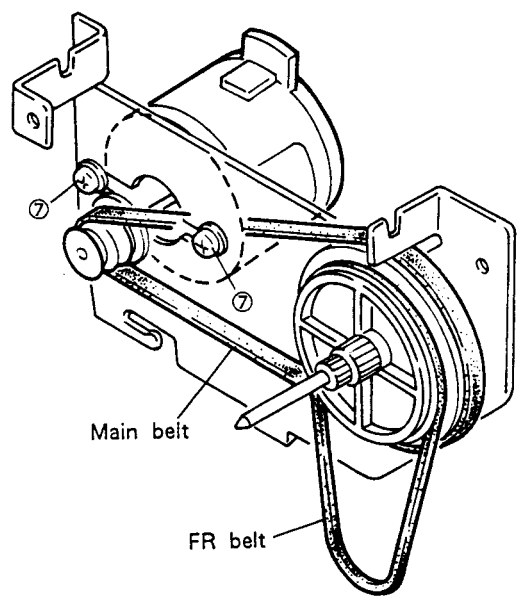


Fig. 2–4

3. EXPLODED VIEWS AND PARTS LIST

NOTES :

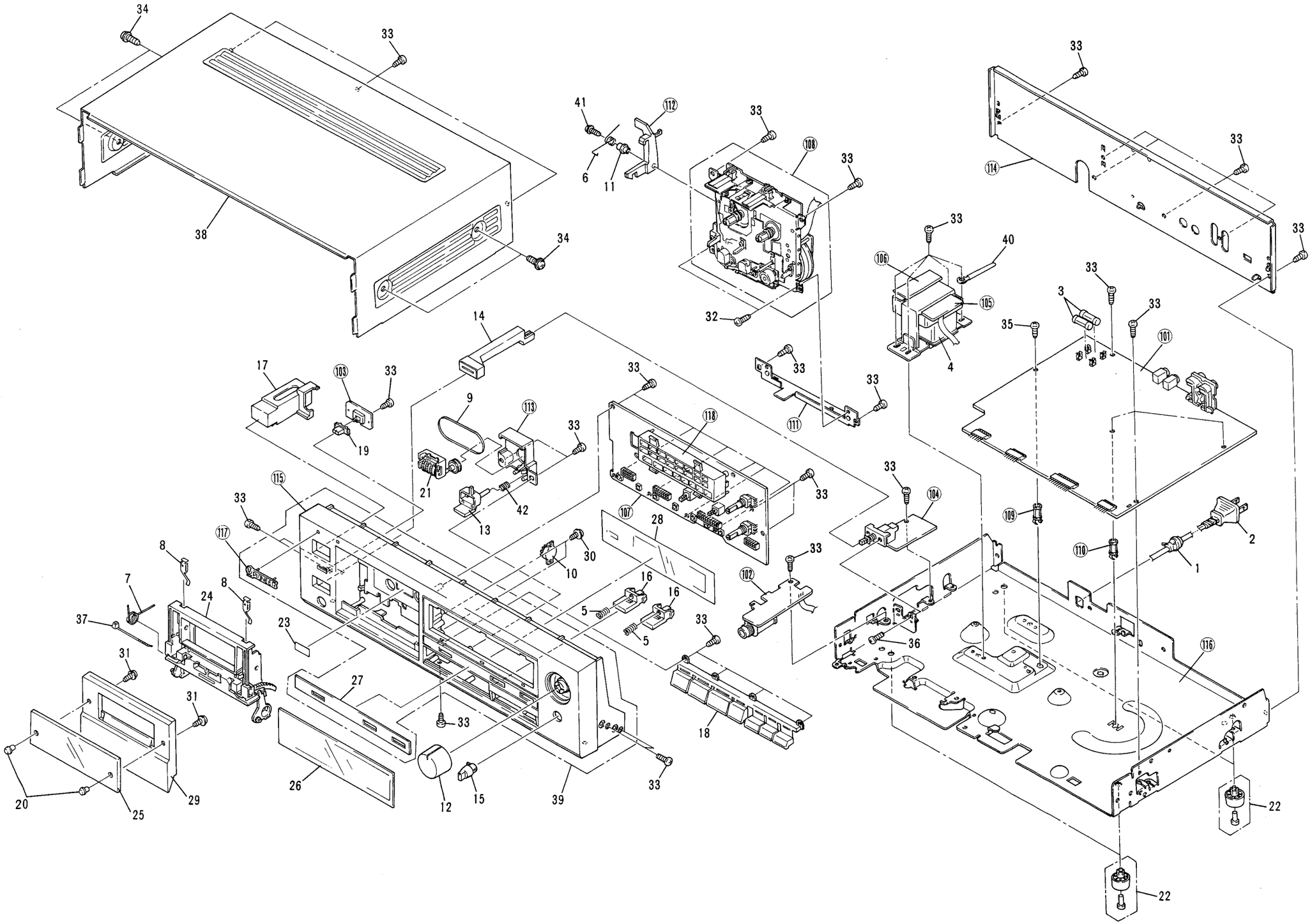
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

3.1 PARTS LIST OF EXTEIOR

Mark	No.	Part No.	Description
⚠	1	CM−22	Strain relief
⚠	2	RDG1010	AC Power cord
⚠	3	REK−073	FU1201, FU1202 fuse (1.25A)
⚠	4	RTT1086	T1 Power transformer
	5	RBH1146	Push spring
	6	RBH1201	Eject lever spring (L) (For Mechanism unit)
	7	RBH1203	Door spring (L)
	8	RBK1004	Half pressure spring
	9	REB−514	Counter belt
	10	REC1013	Damper assembly
	11	RLA1119	Collar (For Mechanism unit)
	12	RAC1221	Knob (REC LEVEL)
	13	RAC1228	Knob (COUNTER RESET)
	14	RAC1240	Bottun (POWER)
	15	RAC1337	Knob (REC BALANCE)
	16	RAC1343	Knob (DOLBY NR)
	17	RAC1344	Knob (EJECT)
	18	RAC1345	Knob (◂◂, ■, ▸, ▸▸, ●, ❚❚, ○)
	19	RAC1357	Knob (REC/TIMER OFF/ PLAY/REPEAT)
	20	RAT1001	Screw
	21	RAW1041	Counter
	22	REC−369	Leg assembly
	23	REE−113	Remaining sheet
	24	RNT1013	Door pocket
	25	RAH1244	Door lens
	26	RAH1457	Meter panel
	27	RAH1458	Dolby name plate
	28	RAH1459	Meter lens
	29	RAH1469	Door panel
	30	ARZ26P060FMC	Screw
	31	ATZ26P050FMC	Screw
	32	BBZ30P060FZK	Screw
	33	BBZ30P080FMC	Screw
	34	FBT40P080FZK	Screw
	35	IBZ30P150FCU	Screw
	36	PMA30P060FMC	Screw
	37	REC−371	Binder
	38	RXX1079	Bonnet
	39	RXX1194	Front panel assembly
	40	RNH−184	Cord clamper
	41	IBZ26P120FMC	Screw
	42	RBH1214	Push spring (A) (Color : Black)

Mark	No.	Part No.	Description
	101		Main unit
	102		Headphone unit
	103		Timer SW unit
	104		Power SW unit
	105		Transformer 1 unit
	106		Transformer 2 unit
	107		Display unit
	108		Mechanism unit
	109		PCB spacer
	110		PCB holder
	111		Mechanism mount plate
	112		Eject lever (L) (For Mechanism unit)
	113		Counter holder
	114		Rear panel
	115		Front panel
	116		Main chassiis
	117		Name plate
	118		LED holder

3.1 Exterior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117
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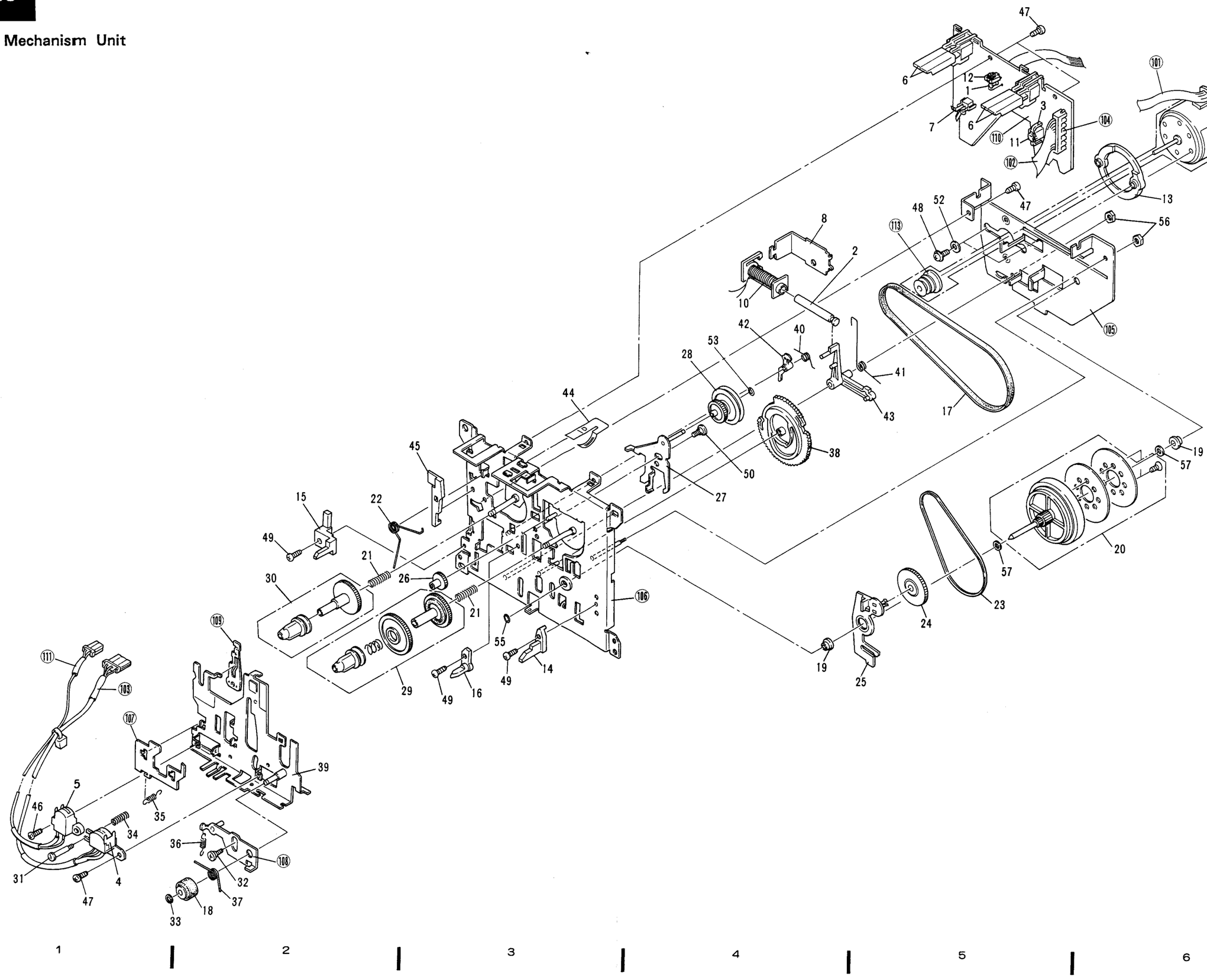
3.2 Mechanism Unit



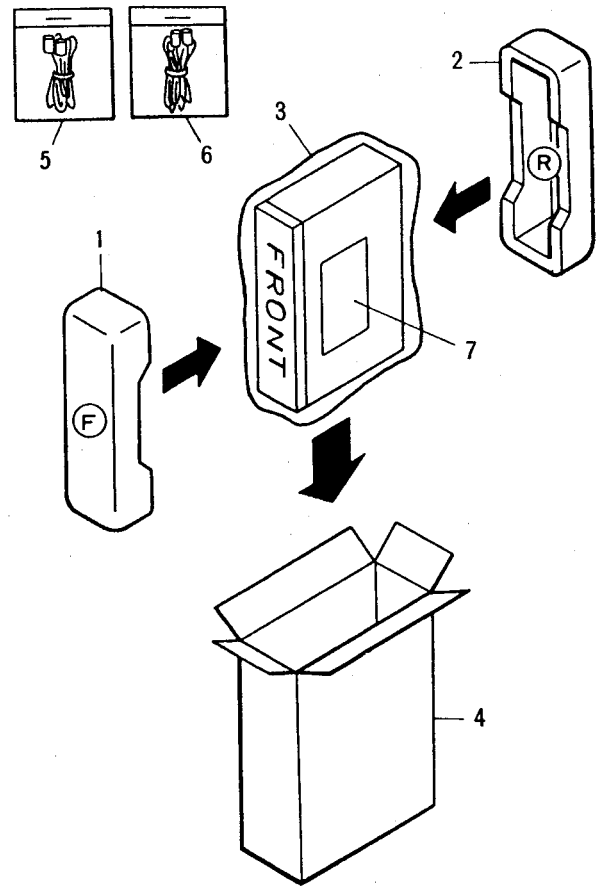
3.2 Parts List of Mechanism Unit

Mark	No.	Part No.	Description
	1	RD 1/8 PM162J	Resistor
	2	RLA1120	Plunger
	3	RNK1461	Holder
	4	RPB1026	R/P Head
	5	RPB1027	E Head
	6	RSN1016	Leaf switch
	7	RSN1017	Leaf switch
	8	RXA1264	Yoke assembly
	9	RXM1026	Motor assembly
	10	RXP1009	Solenoid
	11	SPI31504BC	Photo sensor
	12	VRTS6HS472	Semi-fixed resistor
	13	RNK1460	Spacer
	14	RNK1468	Guide (R)
	15	RNK1469	Guide (L)
	16	RNK1470	Guide
	17	REB1086	Main belt
	18	REB1088	Pinch roller
	19	RNG1035	Metal
	20	RXA1263	Frywheel assembly
	21	RBH1208	Spring
	22	RBH1209	Spring
	23	REB1087	Belt (FR)
	24	RNK1465	Gear (A)
	25	RNK1466	Play arm
	26	RNK1467	Gear (FF)
	27	RXA1266	FR arm assembly
	28	RXA1267	FR pully assembly
	29	RXA1268	T-Reel assembly
	30	RXA1269	S-Reel assembly
	31	RBA1070	Azimuth screw
	32	RBA1071	Screw
	33	RBF1030	Washer
	34	RBH1205	Azimuth spring
	35	RBH1210	Spring
	36	RBH1211	Spring
	37	RBH1212	Spring
	38	RNK1462	Assist gear
	39	RXA1270	Head chassis assembly
	40	RBH1206	Spring
	41	RBH1207	Spring
	42	RNK1463	Arm cue lock
	43	RNK1464	Trigger arm
	44	RBK1026	Cassette spring
	45	RNK1451	Eject lock (L)
	46	BCZ20P060FMC	Screw
	47	PCZ20P040FMC	Screw
	48	RBA1028	Screw
	49	RBA1029	Screw
	50	RBA1072	Screw
	51		.....
	52	RBF1027	Washer
	53	RBF1028	Washer
	54		.....
	55	RBF1031	Washer
	56	RBN1001	Nut
	57	WA21D040D013	Washer
	101		Motor wire
	102		Wire 12P
	103		Connector assembly
	104		Cable holder
	105		Motor bracket
	106		Chassis assembly
	107		Select lever
	108		Assist arm assembly
	109		Arm switch
	110		P.C.Board
	111		Connector assembly
	112		Motor
	113		Motor pully

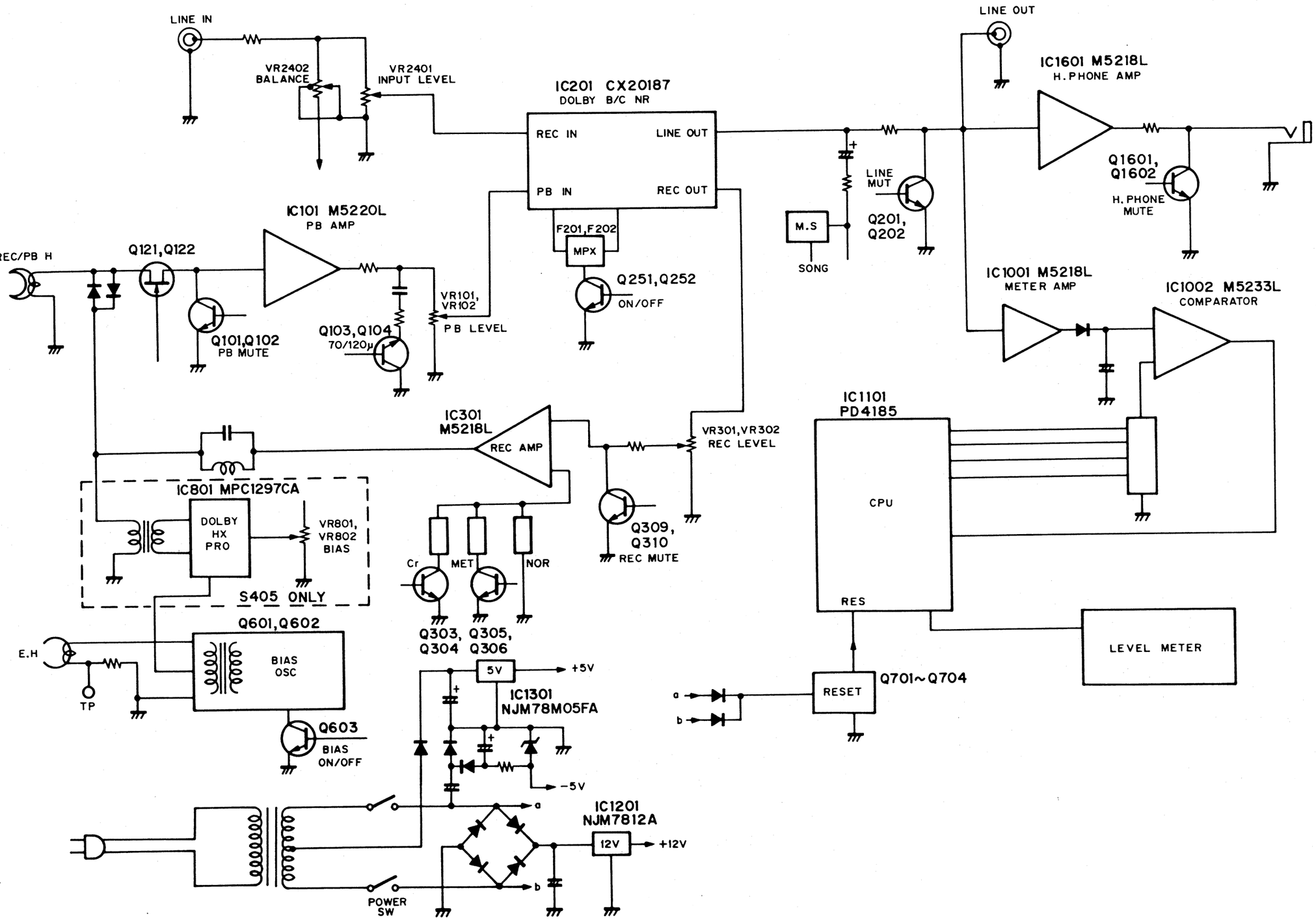
4. PACKING

Parts List

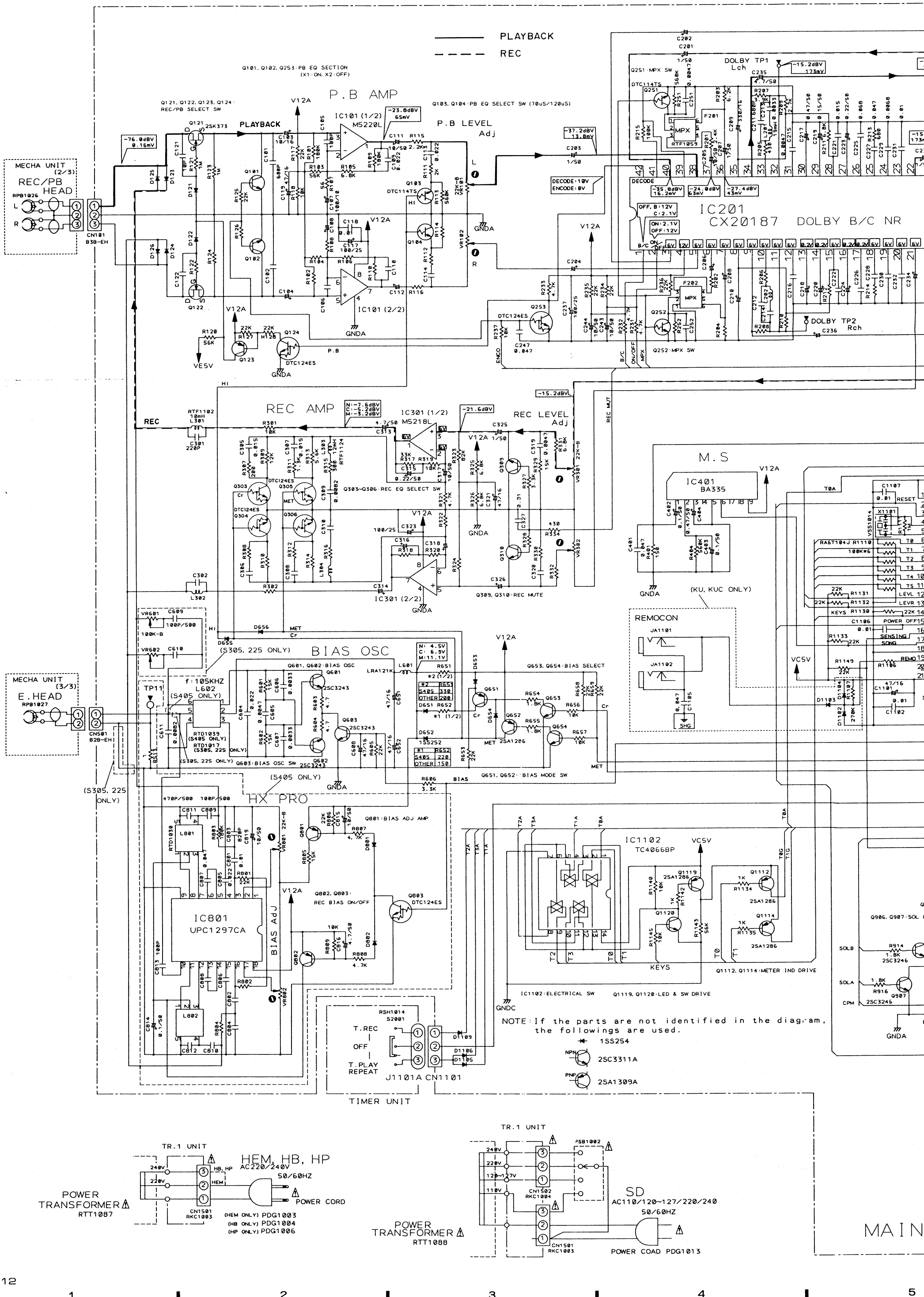
Mark	No.	Part No.	Description
	1	RHA1006	Pad (A)
	2	RHA1007	Pad (B)
	3	RHC-161	Styren paper
	4	RHG1121	Packing case
	5	PDE-319	Connection cord
	6	RDE-010	Connection cord
	7	RRB1044	Operating instructions (English)



5. BLOCK DIAGRAM

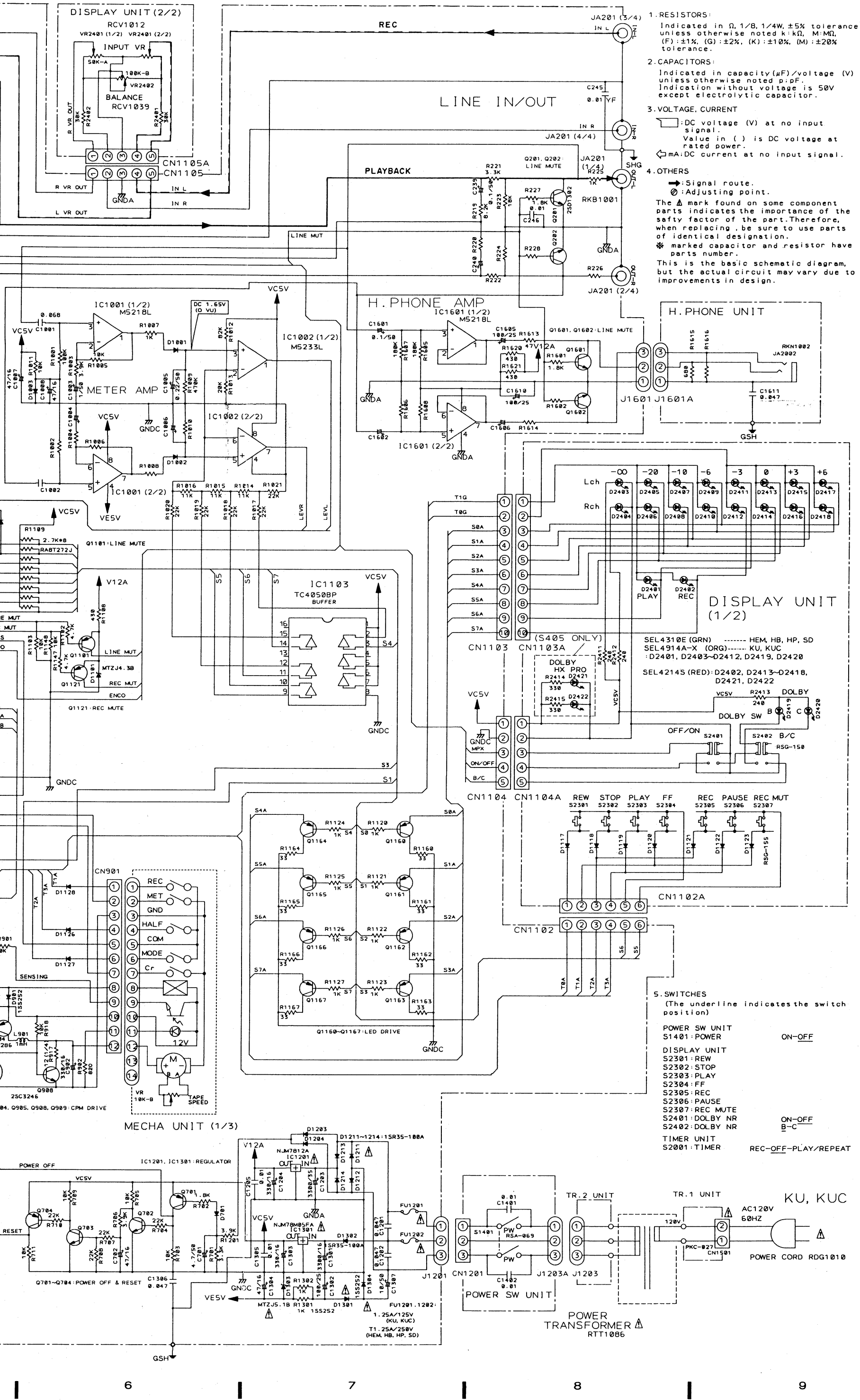


6. SCHEMATIC DIAGRAM



DISPLAY UNIT (2/2)
RCV1012
VR2401 (1/2) VR2401 (2/2)
INPUT VR
50K-A
100K-B
VR2402
BALANCE
RCV1039
R VR OUT
L VR OUT
CN1105A
CN1105
GNDA
IN L
IN R
REC
LINE IN/OUT
JA201 (4/4)
PLAYBACK
Q201, Q202: LINE MUTE
2SD1302
RKB10
LINE MUT
H. PHONE AMP
IC1601 (1/2) M5218L
IC1601 (2/2)
Q1601, Q1602: LI
IC1001 (1/2) M5218L
IC1001 (2/2)
IC1002 (1/2) M5233L
IC1002 (2/2)
METER AMP
DC 1.65V (0 VU)
VC5V
VE5V
GNDC
M.S
IC401 BA335
(KU, KUC ONLY)
REMOCON
JA1101
JA1102
SHG
IC1101 PD4185
SYSTEM CONTROL
RESET
SENSING
SONG
REMO
POWER OFF
LEVL
LEVR
KEYS
REC MUT
LINE MUT
BIAS
ENCO
CPM
SOLA
SOLB
IC1103 TC4050BP BUFFER
IC1102 TC4066BP
Q1112, Q1114: METER IND DRIVE
Q1119, Q1120: LED & SW DRIVE
Q1160~Q1167: LED DRIVE
Q1101: LINE MUTE
Q1121: REC MUTE
Q901: SENSING
Q906, Q907: SOL DRIVE
Q904, Q905, Q908, Q909: CPM DRIVE
CN901
REC
MET
GND
HALF
COM
MODE
Cr
SENSING
12V
VR 10K-B
TAPE SPEED
CN1103
CN1103A
CN1104
CN1104A
CN1102
(S405 ONLY)
DOLBY HX PRO
Lch
Rch
REW
DOLBY TP1 Lch
DOLBY TP2 Rch
-15.2dBV 173mV
-7.4dBV 427mV
-35.8dBV 16.2mV
-24.0dBV 63mV
-27.4dBV 43mV
IC201 CX20187 DOLBY B/C NR
OFF: 8V C: 2.1V
ON: 2.1V OFF: 12V
B/C
ON/OFF
MPX
Q251: MPX SW
Q252: MPX SW
RTF1059
REC MUT
MET
SD
AC110/120~127/220/240
50/60HZ
POWER COAD PDG1013
IC1201, IC1301: REGULATOR
NJM7812A
NJM7805FA
Q701~Q704: POWER OFF & RESET
FU1201
FU1202
J1201
CN1201
J1203A
J1203
POWER SW UNIT
POWER TRANSFOR
MAIN UNIT
GSH

Parts are not identified in the diagram, followings are used.
1SS254
2SC3311A
2SA1309A



1. RESISTORS:
Indicated in Ω, 1/8, 1/4W, ±5% tolerance unless otherwise noted k:kΩ, M:MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.

2. CAPACITORS:
Indicated in capacity(μF)/voltage (V) unless otherwise noted p:pF.
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT
: DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
⇦mA: DC current at no input signal.

4. OTHERS
➡: Signal route.
⊘: Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safty factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitor and resistor have parts number.
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES
(The underline indicates the switch position)

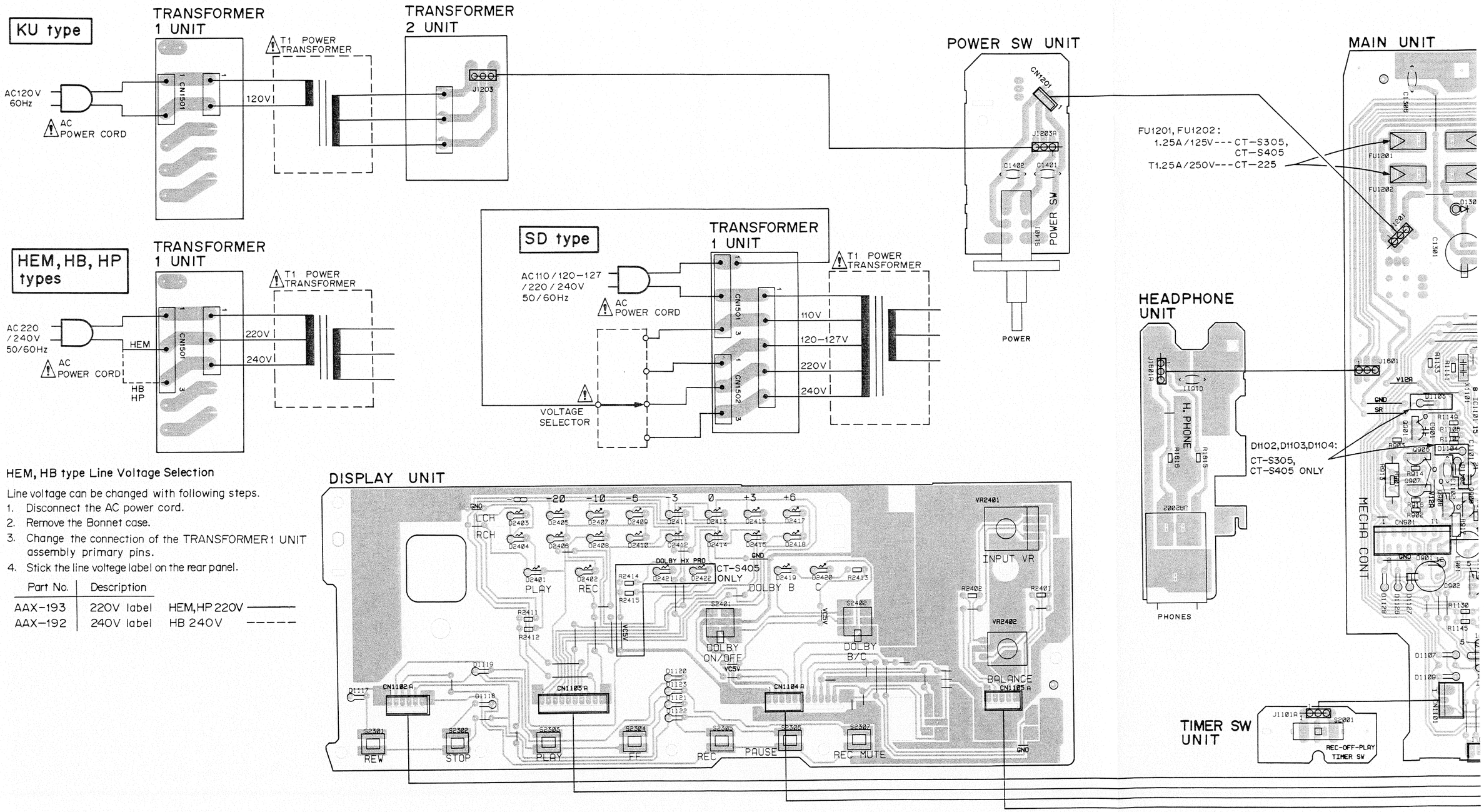
POWER SW UNIT
S1401: POWER ON-OFF

DISPLAY UNIT
S2301: REW
S2302: STOP
S2303: PLAY
S2304: FF
S2305: REC
S2306: PAUSE
S2307: REC MUTE
S2401: DOLBY NR ON-OFF
S2402: DOLBY NR B-C

TIMER UNIT
S2001: TIMER REC-OFF-PLAY/REPEAT

7. P.C. BOARDS CONNECTION DIAGRAM

- View from component side


KU type
TRANSFORMER 1 UNIT
T1 POWER TRANSFORMER
AC120V 60Hz
AC POWER CORD
CN1501
120V
TRANSFORMER 2 UNIT
J1203
POWER SW UNIT
CN1201
J1203A
C1402
C1401
POWER SW
S1401
POWER
MAIN UNIT
FU1201, FU1202:
1.25A/125V---CT-S305, CT-S405
T1.25A/250V---CT-225
FU1201
FU1202
D1301
C1301
C1306
HEM, HB, HP types
TRANSFORMER 1 UNIT
T1 POWER TRANSFORMER
AC220 /240V 50/60Hz
AC POWER CORD
HEM
HB HP
CN1501
220V
240V
SD type
TRANSFORMER 1 UNIT
T1 POWER TRANSFORMER
AC110/120-127 /220/240V 50/60Hz
AC POWER CORD
VOLTAGE SELECTOR
CN1501
CN1502
110V
120-127V
220V
240V
HEADPHONE UNIT
J1601A
J1601
C1611
H. PHONE
R1616
R1615
PHONES
V12R
GND
SR
D1102,D1103,D1104:
CT-S305,
CT-S405 ONLY
R1133
R1134
D1103
R1149
R1150
C901
R914
R907
R915
R916
R902
R903
Q902
Q901
D1101
D1102
D1104
R1131
R1132
R1130
C902
R1148
R1145
D1107
D1109
D1108
MECHA CONT
CN901
GND
C1101
C1102
C1103
C1104
C1105
C1106
C1107
C1108
C1109
C1110
C1111
C1112
C1113
C1114
C1115
C1116
C1117
C1118
C1119
C1120
C1121
C1122
C1123
C1124
C1125
C1126
C1127
C1128
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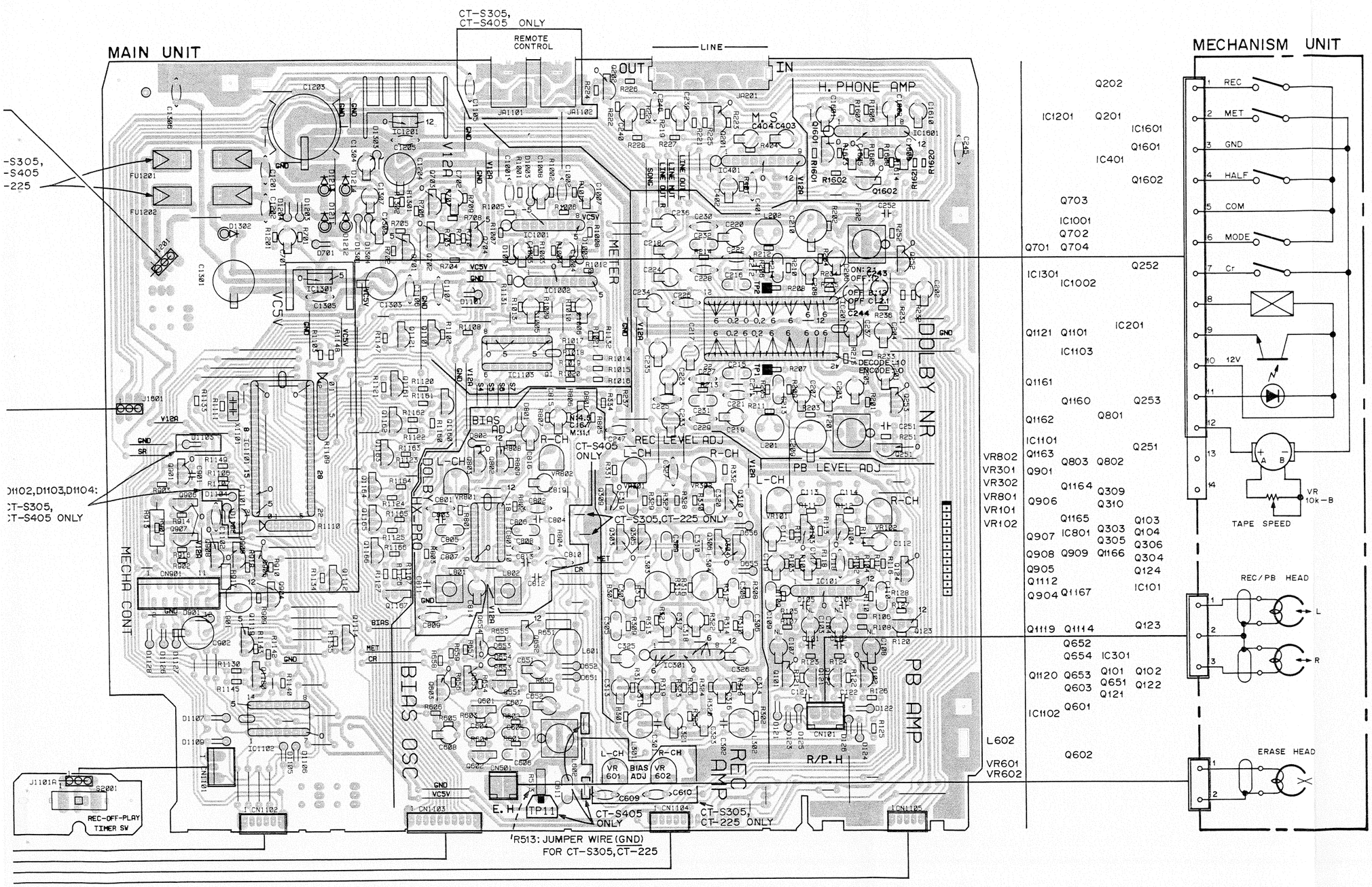
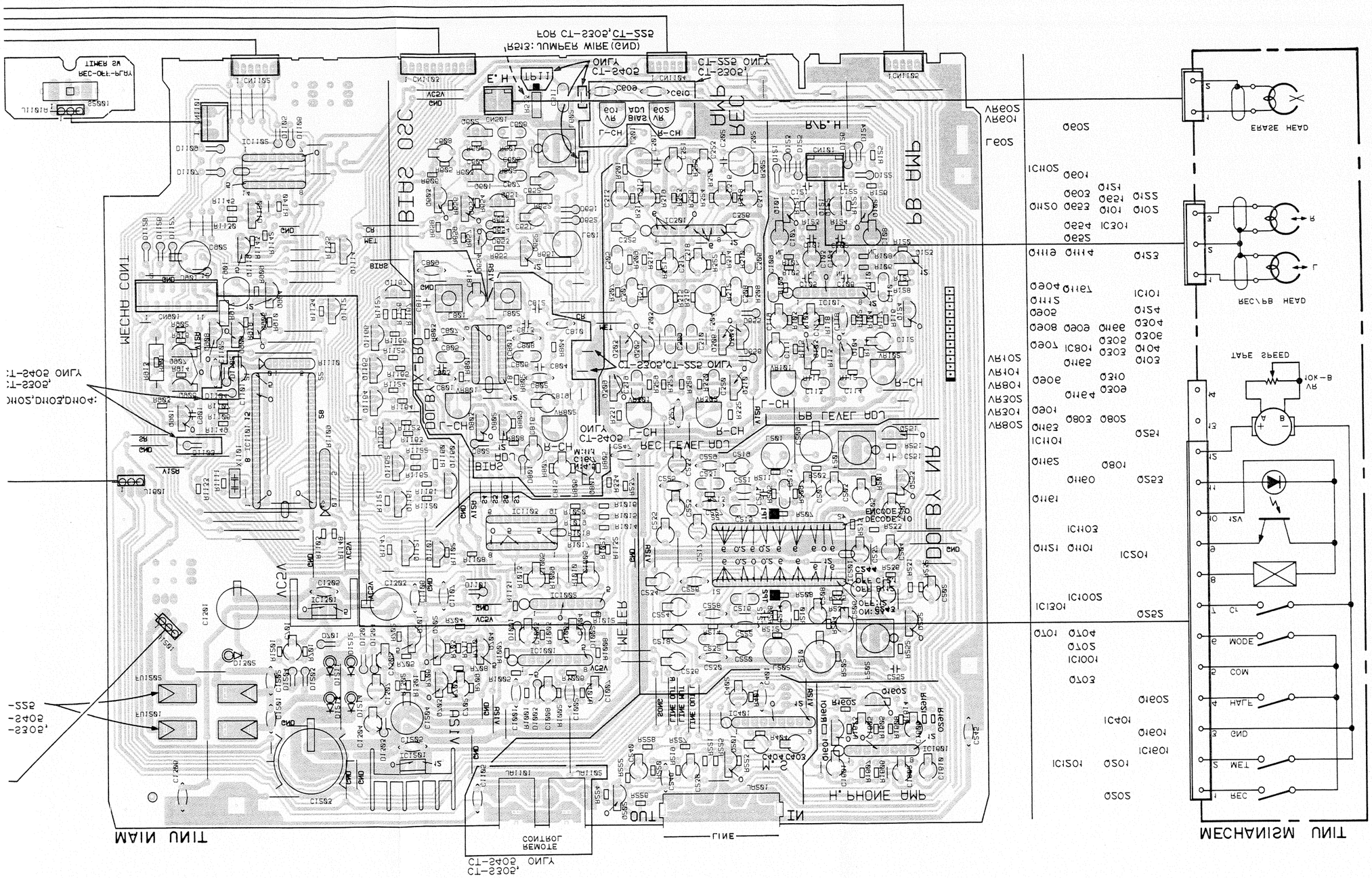


P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

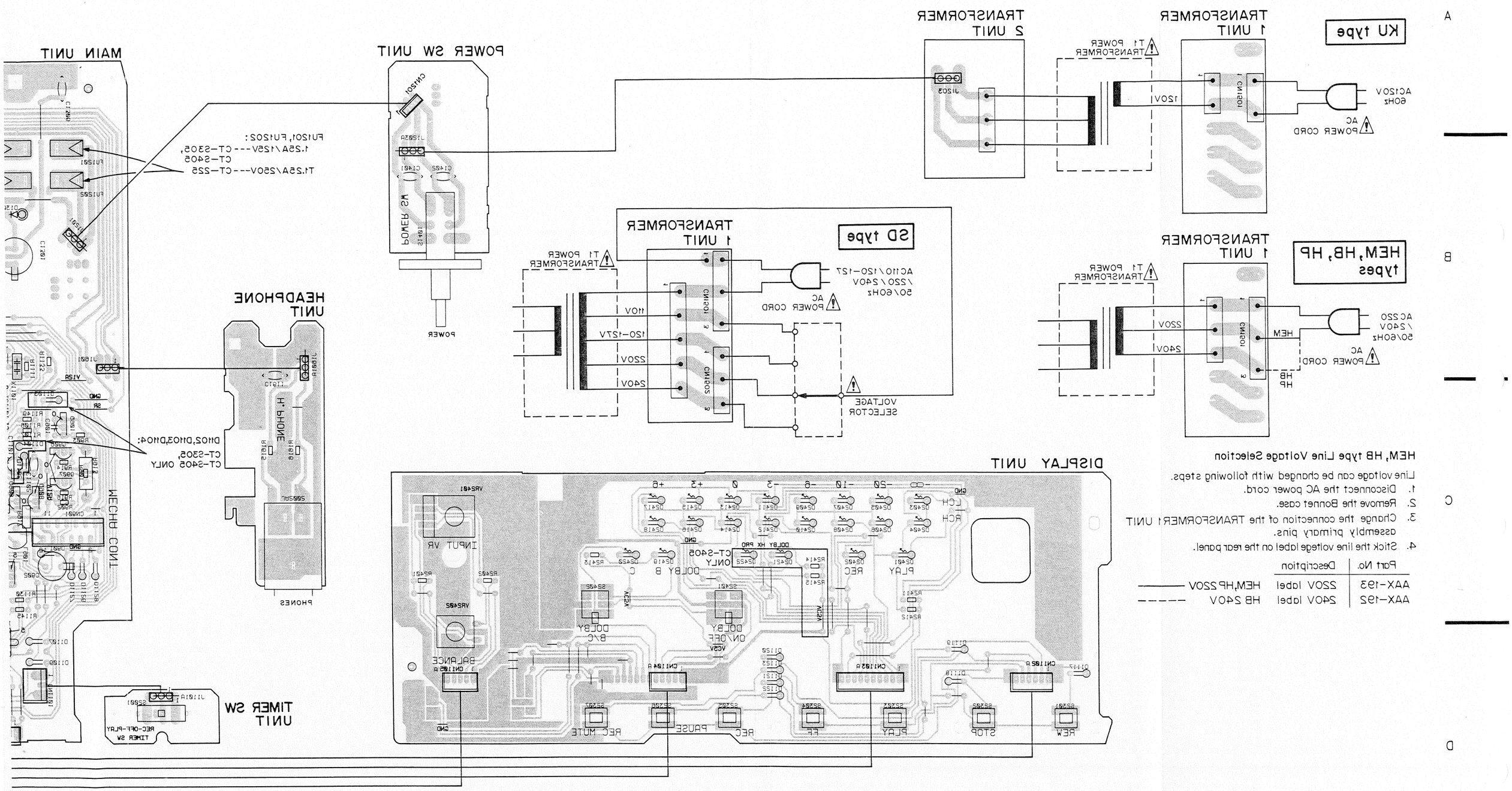
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.


MAIN UNIT
MECHANISM UNIT
MECHA CONT
BIAS OSC
REC AMP
PB AMP
REC LEVEL ADJ
PB LEVEL ADJ
H.PHONE AMP
METER
ERASE HEAD
REC\PB HEAD
TAPE SPEED
WIRE (GND)
CT-2502,CT-2552
CT-2502 ONLY
CT-2552 ONLY
CONTROL
REMOTE
LINE
IN
OUT

CT-2502

7. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side



HEM, HB type Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the TRANSFORMER1 UNIT assembly primary pins.
4. Stick the line voltage label on the rear panel.

Part No.	Description	
AAX-193	220V label	HEM,HP 220V ———
AAX-192	240V label	HB 240V - - - - -

8. ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	56×10^{1}	561	RD1/4PS 5 6 1 J
47k Ω	47×10^{3}	473	RD1/4PS 4 7 3 J
0.5 Ω	0R5		RN2H 0 R 5 K
1 Ω	010		RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	562×10^{1}	5621	RN1/4SR 5 6 2 1 F

Miscellaneous Parts

P. C. BOARD ASSEMBLY

Mark	Symbol & Description	Part No.
	Main unit	
	Headphone unit	
	Timer SW unit	
	Power SW unit	
	Transeformer 1 unit	
	Transeformer 2 unit	
	Display unit	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Strain relief	CM-22
⚠	AC Power cord	RDG1010
⚠	FU1201, FU1202 Fuse (1.25A)	REK-073
⚠	T1 Power transformer (AC120V)	RTT1086
	Resistor	RD 1/6 PM162J
	R/P Head	RPB1026
	E head	RPB1027
	Leaf switch	RSN1016
	Leaf switch	RSN1017
	York assembly	RXA1264
	Motor assembly	RXM1026
	Solenoid	RXP1009
	Photo sensor	SPI31504BC
	Semi-fixed resistor	VRTS6HS472

Main Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC401	BA335
	IC201	CX20187
	IC301, IC1001, IC1601	M5218L
	IC101	M5220L
	IC1002	M5233L
⚠	IC1301	NJM78M05FA
⚠	IC1201	NJM7812A
	IC1101	PD4185
	IC1103	TC4050BP
	IC1102	TC4066BP
	Q103, Q104, Q251, Q252	DTC114TS
	Q124, Q253, Q303-Q306, Q905, Q909	DTC124ES
	Q652, Q904, Q1112, Q1114, Q1119	2SA1286
	Q123, Q651, Q701, Q704, Q1101, Q1121, Q1160-Q1167	2SA1309A
	Q601-Q603	2SC3243
	Q906-Q908	2SC3246
	Q101, Q102, Q309, Q310, Q653, Q654, Q702, Q703, Q901, Q1120, Q1601, 1602	2SC3311A
	Q201, Q202	2SD1302
	Q121, Q122	2SK373
	D1101	MTZJ4.3B
⚠	D1303	MTZJ5.1B
⚠	D1211-D1214, D1302	1SR35-100AVL
	D1301, D1304	1SS252
	D652, D901	1SS252
	D121-D126, D651, D653-D656, D701, D1001-D1003, D1102-D1107, D1109, D1126-D1128, D1203, D1204	1SS254

COILS AND FILTER

Mark	Symbol & Description	Part No.
	L601 Radial inductor	LRA121K
	L602 Oscillator coil	RTD1017
	L901 Coil 1mH	RTF1090
	L301, L302 Coil 10mH	RTF1102
	L201, L202 Coil 19mH	RTF1111
	L303, L304 Coil 12mH	RTF1124
	F201, F202 MPX Filter	RTF1059

CAPACITORS

Mark	Symbol & Description	Part No.
	C609, C610	CCCSL101K500
	C121, C122	CCPUSL100J50
	C103, C104	CEANL100M16
	C107, C108	CEANL101M10
	C239, C240, C402, C403, C1601, C1602	CEASR10M50
	C219, C220	CEASR15M50
	C223, C224, C315, C316, C1005, C1006	CEASR22M50
	C217, C218, C404	CEASR47M50
	C201–C204, C207, C208, C233, C234, C325, C326,C1003, C1004	CEAS010M50
	C111, C112, C205, C206, C243, C244, C317, C318, C1307	CEAS100M50
	C117, C237, C323, C1302, C1605, C1606, C1610	CEAS101M25
	C1301	CEAS332M16
	C209, C210, C902, C1204, C1303	CEAS331M16
	C1203	CEAS332M35
	C235, C236, C313, C314, C701	CEAS4R7M50
	C119, C321, C608, C651, C652, C702, C1007, C1008, C1101, C1304	CEAS470M16
	C221, C222, C305–C308	CFTXA153J50
	C109, C110, C113, C114, C604	CFTXA223J50
	C213, C214, C606, C607	CFTXA332J50
	C215, C216, C251, C252, C319, C320, C605	CFTXA472J50
	C309, C310	CFTXA822J50
	C231, C232	CGCYX103K25
	C227, C228, C401	CGCYX473K25
	C229, C230	CGCYX682K25
	C225, C226, C1001, C1002	CGCYX683K25
	C118, C245, C246, C327, C1102, C1106, C1107, C1205, C1305	CKCYF103Z50
	C247, C1105, C1201, C1202, C1306	CKCYF473Z50
	C105, C106	CKPUYB101K50
	C301, C302	CKPUYB221K50
	C101, C102, C211, C212, C901	CKPUYB681K50
	C611	CQPA822J100

RESISTORS

Mark	Symbol & Description	Part No.
	R1110 Resistor array	RA6T104J
	R1109 Resistor array	RA8T272J
	R913	RS2LMF330J
	VR601, VR602 Semi-fixed (BIAS ADJ) (100k)	VRTB6VS104
	VR101, VR102, VR301, VR302 Semi-fixed (22k)	VRTB6VS223
	R917	RD¼PM120J
	R651, R652	RD½LF□□□J
	Other resistors	RD⅙PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA201 Pin jack 4P (LINE L/R)	RKB1001
	JA1101, JA1102 Jack 3.5 φ (CONTROL IN/OUT)	RKN-071
	CN1104, CN1105 Connector	53095-0510
	CN1102 Connector	53095-0610
	X1101 Ceramic resonator	VSS1014

Headphone Unit

CAPACITOR

Mark	Symbol & Description	Part No.
	C1611	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R1615, R1616	RD⅙PM681J

OTHERS

Mark	Symbol & Description	Part No.
	JA2002 Jack (PHONES)	RKN1002

Timer SW Unit

SWITCH

Mark	Symbol & Description	Part No.
	S2001 Slide switch (REC/TIMER OFF/PLAY/REPEAT)	RSH1014

Power SW Unit

SWITCH

Mark	Symbol & Description	Part No.
	S1401 Push switch (POWER)	RSA-069

CAPACITORS

Mark	Symbol & Description	Part No.
	C1401, C1402	CKCYF103Z50

Transformer 1 unit

There is no supply part in this unit.

Transformer 2 unit

There is no supply part in this unit.

Display Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D2402, D2413–D2418	SEL4214S
	D2401, D2403–D2412, D2419, D2420	SEL4914A–X
	D1117–D1123	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S2401, S2402 Push switch	RSG–150
	S2301–S2307 Tact switch (◂◂, ■, ▸, ●, ▮▮, ⏻)	RSG–155

RESISTORS

Mark	Symbol & Description	Part No.
	VR2401 Varriable resistor (REC LEVEL) (50kA)	RCV1012
	VR2402 Varriable resistor (REC VALANCE) (50kB)	RCV1039
	Other resistors	RD⅙PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN1104, CN1105 Connector	52084–0510
	CN1102 Connector	52084–0610
	CN1103 Connector	52084–1010

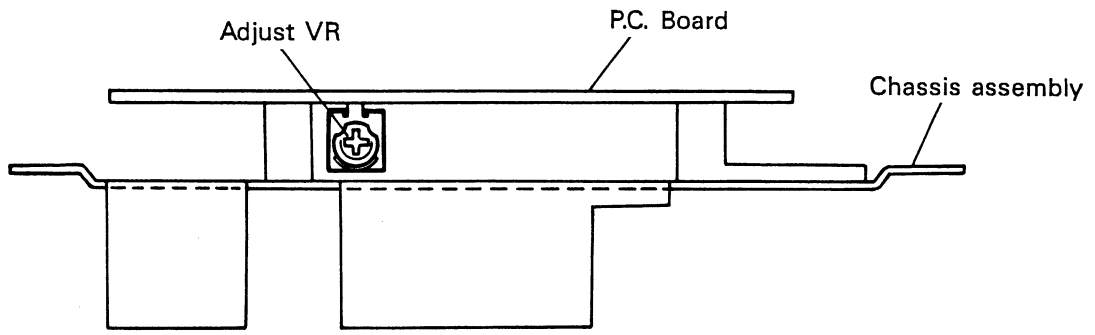
9. ADJUSTMENTS

9.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment

Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	Variable resistor control	3000Hz ± 5Hz

Note: Adjust after one minute of playback.



Mechanism unit diagram, top view

Fig. 9-1

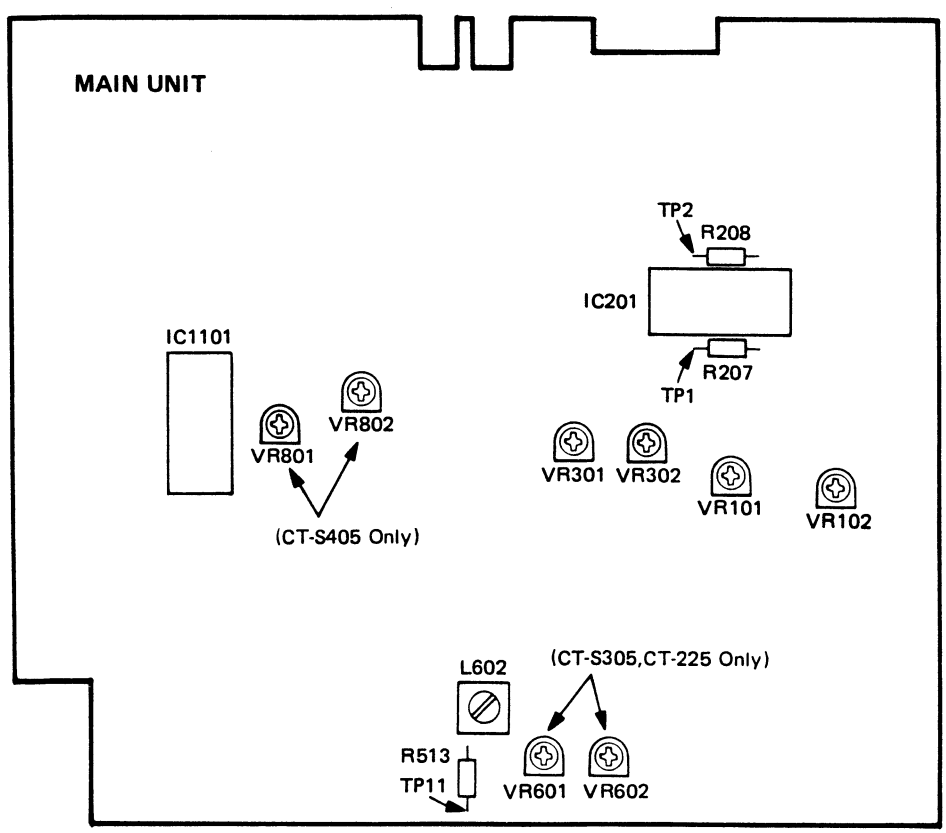


Fig. 9-2

9.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0dBv=1Vrms.
5. Connect a 50 kilo-ohm (or between 47 to 52 kilo-ohm) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD-331B	: Playback adjustments (See Fig. 9-3)
STD-630	: NORMAL blank tape
STD-620	: CrO_2 blank tape
STD-610	: METAL blank tape

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment. (CT-S405 only)
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.

NOTE: This unit has an automatic tape selection feature.

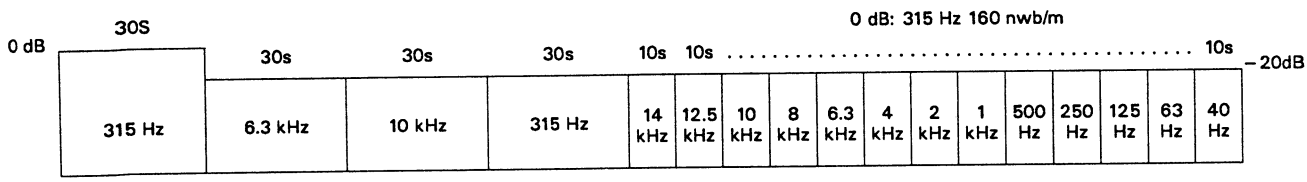


Fig. 9-3. Constants of the test tape STD-331B

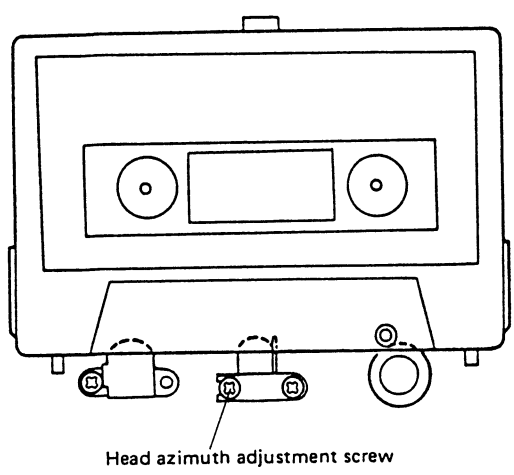


Fig. 9-4. Head azimuth adjustment

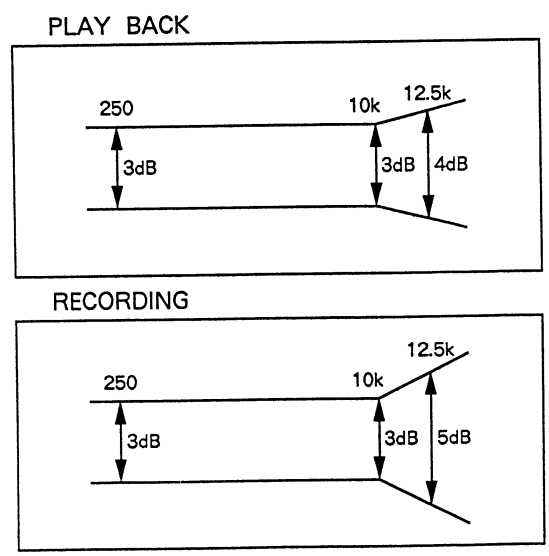


Fig. 9-5. Allowable playback frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

• Turn VR101, 102 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/−20 dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 9-4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback level Adjustment

• This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD-331B test tape.	Deck I	VR101 (Lch) VR102 (Rch)	TP1. DOL.L (Lch) TP2. DOL.R (Rch)	−15.2 dBv	

RECORDING SECTION

1. Bias Oscillator Adjustment (CT-S405 only)

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	Deck I	L 602	TP. 11	105 kHz ±0.3 kHz	

2. Recording Bias Adjustment

• After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC	Record the 315 Hz and 6.3 kHz signals at −20 dBv input level and playback. (Use the STD-630 test tape)	Deck I	VR601 (Lch) VR602 (Rch) (CT-S305 ONLY) (CT-225 ONLY) VR801 (Lch) VR802 (Rch) (CT-S405 ONLY)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes +1.0 dB±0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC PAUSE	Apply a 315 Hz/0 dBv signal to the line Input terminals, load the STD-630 test tape.	Rec Level control volume		TP1. DOL.L (Lch) TP2. DOL.R (Rch)	−15.2 dBv	
3.	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)					
4.	REC/ PLAY	Record the above signal onto the STD-630 test tape, and playback.	Deck I	VR301 (Lch) VR302 (Rch)	TP1. DOL.L (Lch) TP2. DOL.R (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes −15.2 dB.	
5.	STOP	Set the TAPE SELECTOR switch to the CrO_2 position.					
6.	REC/ PLAY	Record the above signal onto the STD-620 test tape, and playback.	Check		TP1. DOL.L (Lch) TP2. DOL.R (Rch)	−15.2 dBv ±1.5 dB	
7.	STOP	Set the TAPE SELECTOR switch to the METAL position.					
8.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		TP1. DOL.L (Lch) TP2. DOL.R (Rch)	−15.2 dBv ±1.5 dB	

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/−10 dBv (316 mV) signal to the Line Input terminals.	Rec Level control volume	TP1. DOL.L (Lch) TP2. DOL.R (Rch)	Check that the level meters "0 dB" light up within −15.2 dBv ±2 dB of the signal output level.	

9. RÉGLAGE

9.1 RÉGLAGES MÉCANIQUES

1. Reglage de la vitesse de défilement de la bande

Mode	Bande d'étalonnage	Position de réglage	Spécifications nominales (fréquence de lecture)
LECTURE	Lire la bande STD-301 (3kHz)	Contrôle à résistance variable	3000Hz ±5Hz

Remarque: Ajuster après une minute de lecture.

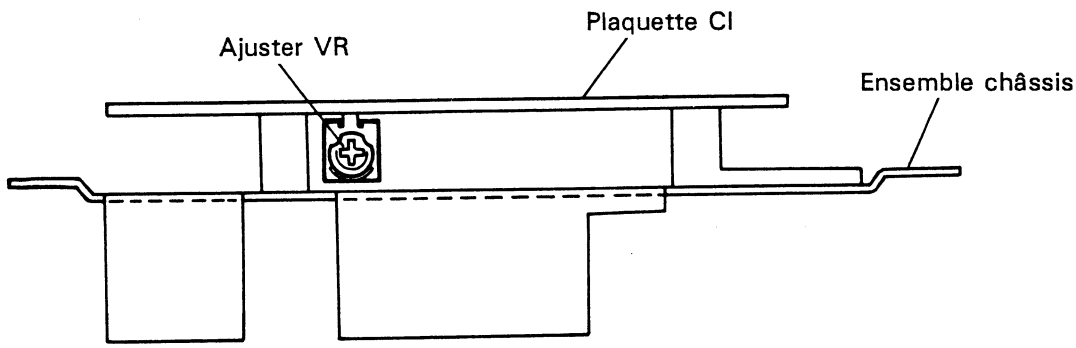


Diagramme de l'unité du mécanisme, vue de haut

Fig. 9-1

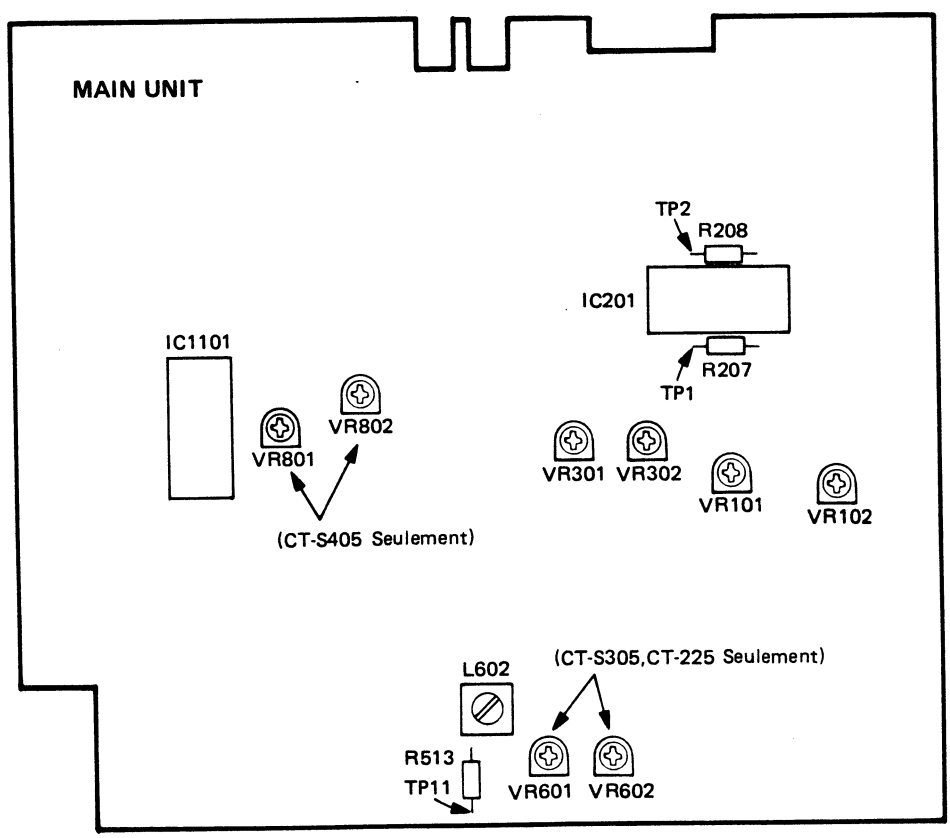


Fig. 9-2

9.2 REGLAGES ELECTRIQUES

Conditions de réglage

1. Les réglages mécaniques doivent tout d'abord être terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Mettre la platine sous tension et la laisser chauffer pendant au moins quelques minutes avant de commencer les réglages électriques.
4. Le signal de référence est de dBv=1 Vrms.
5. Connecter une résistance de charge de 50 kohms (tolérance 47 à 52 kohms) aux bornes de sortie (OUTPUT).
6. Sauf indication contraire, les commutateurs ci-dessous doivent être laissés sur les positions indiquées.
   DOLBY NR : OFF
   Sélecteur de bande (TAPE SELECTOR) : NORM

Bandes d'essai

STD-331B : Réglages de la lecture (Voir fig. 9-3)
STD-630 : Bande vierge de type normal
STD-620 : Bande vierge de type chrome
STD-610 : Bande vierge de type métal

Liste des réglages

Sections de lecture

1. Réglage de l'azimut de la tête.
2. Réglage du niveau de lecture.

Sections d'enregistrement

1. Réglage de l'oscillateur de polarisation. (CT-S405 seulement)
2. Réglage de la polarisation d'enregistrement.
3. Réglage du niveau d'enregistrement.
4. Vérification de l'indicateur de niveau.

REMARQUE:
Cette unité est dotée d'une sélection automatique de bande.

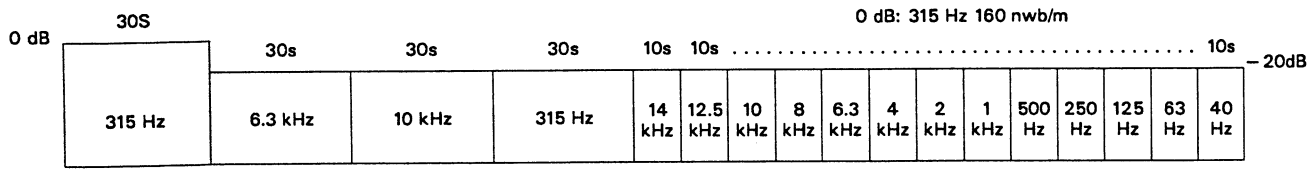


Fig. 9-3 Constantes de la bande d'essai STD-331B

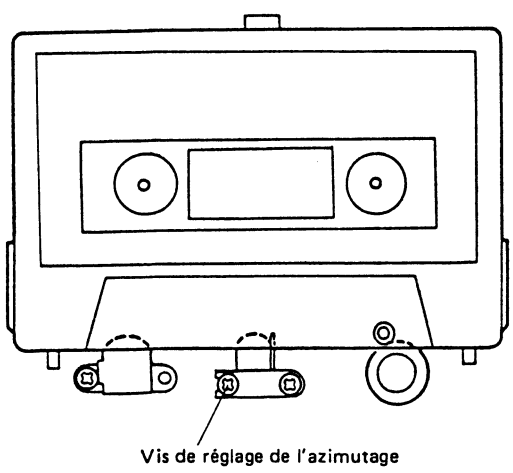


Fig. 9-4 Réglage de l'azimut de la tête

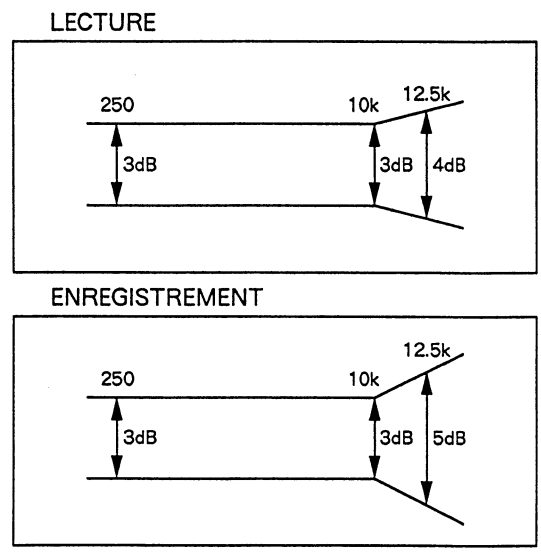


Fig. 9-5 Tolérance de la zone de réponse en fréquence de lecture

SECTION DE LECTURE

1. Réglage de l'azimut de la tête

• Tourner VR 101, 102 sur leur position centrale mécanique.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 10 kHz/−20 dB de la bande d'essai STD-331B.	Vis de réglage de l'azimut de la tête. (Voir fig. 9-4)	Sortie de ligne (LINE OUT)	Niveau du signal de reproduction maximum.	
2.	STOP	Verrouiller la vis avec le verrouillage de vis après avoir terminé le réglage.				

2. Réglage du niveau de lecture

• Ce réglage détermine le niveau DOLBY NR et il doit être effectué très soigneusement.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 315 Hz/0 dB de la bande d'essai STD-331B.	Platine I	VR101(can. G) VR102(can. D)	TP1. DOL.L (can. G) TP2. DOL.R (can. D)	−15.2 dBv	

SECTION D'ENREGISTREMENT

1. Réglage de l'oscillateur de polarisation (CT-S405 seulement)

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD-610 et n'introduire aucun signal.	Platine I	L 602	TP. 11	105 kHz ±0.3 kHz	

2. Réglage de la polarisation d'enregistrement

• Après le réglage, des précautions doivent être prises pour éviter une sous-polarisation en vérifiant le taux de distorsion.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.					
2.	REC	Enregistrer les signaux 315 Hz et 6,3 kHz à un niveau d'entrée de −20 dBv et les reproduire. (Utiliser la bande d'essai STD-630)	Platine I	VR601(can. G) VR602(can. D) (CT-S305 CT-225 seulement) VR801(can.G) VR802(can.D) (CT-S405 seulement)	Sortie de ligne (LINE OUT)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau de lecture du signal 6,3 kHz devienne +1.0 dB ±0.5 dB lorsqu'il est comparé avec le signal 315 Hz.	

3. Réglage du niveau d'enregistrement

• Régler l'oscillateur de polarisation, les platines I et II étant réglées indépendamment dans le mode d'enregistrement. ← (Enr/lec double seulement)

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.					
2.	REC PAUSE	Appliquer un signal de 315 Hz/0 dBv aux bornes d'entrée de ligne, charger la bande d'essai STD-630.	Volume de la commande de niveau d'enregistrement.		TP1. DOL.L (can. G) TP2. DOL.R (can. D)	−15.2 dBv	
3.	STOP	Régler le commutateur DOLBY NR sur la position ON. (DOLBY B)					
4.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-630 et le reproduire.	Platine I	VR301(can. G) VR302(can. D)	TP1. DOL.L (can. G) TP2. DOL.R (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne −15.2 dB.	
5.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position CrO_2.					
6.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-620 et le reproduire.	Vérifier		TP1. DOL.L (can. G) TP2. DOL.R (can. D)	−15.2 dBv ±1.5 dB	
7.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position METAL.					
8.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-610 et le reproduire.	Vérifier		TP1. DOL.L (can. G) TP2. DOL.R (can. D)	−15.2 dBv ±1.5 dB	

4. Vérification de l'indicateur de niveau

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC PAUSE	Appliquer un signal de 315 Hz/– 10 dBv (316 mV) aux bornes d'entrée de ligne.	Volume de la commande de niveau d'enregistrement	TP1. DOL.L (can. G) TP2. DOL.R (can. D)	Vérifier que les indicateurs de niveau "0 dB" s'allument dans la limite de – 15.2 dBv ± 2 dB du niveau de sortie du signal.	

9. AJUSTE

9.1 AJUSTE MECANICO

1. Ajuste de la velocidad de la cinta			
Modo	**Cinta de prueba**	**Posición de ajuste**	**Valor de especificatión (frecuencia de reproducción)**
PLAY	Reproducir la STD-301 (3kHz)	Control del resistor variable	3000Hz ± 5Hz

Nota: Ajustar la resistencia variable

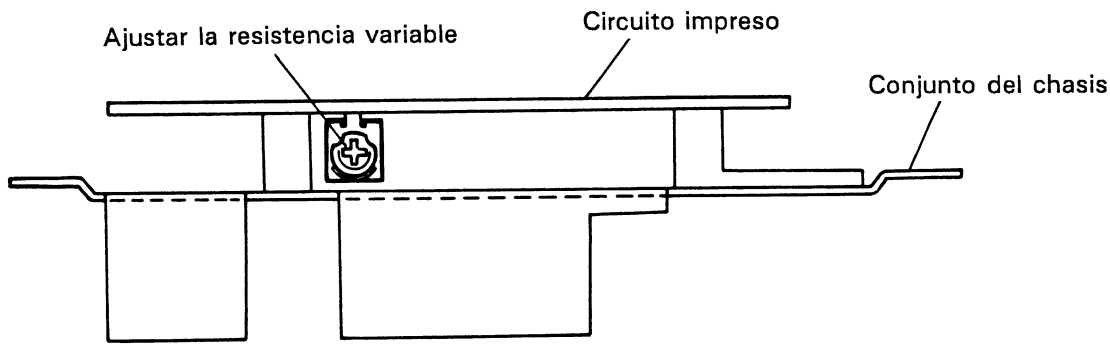


Diagrama del mecanismo, vista de arriba

Fig. 9-1

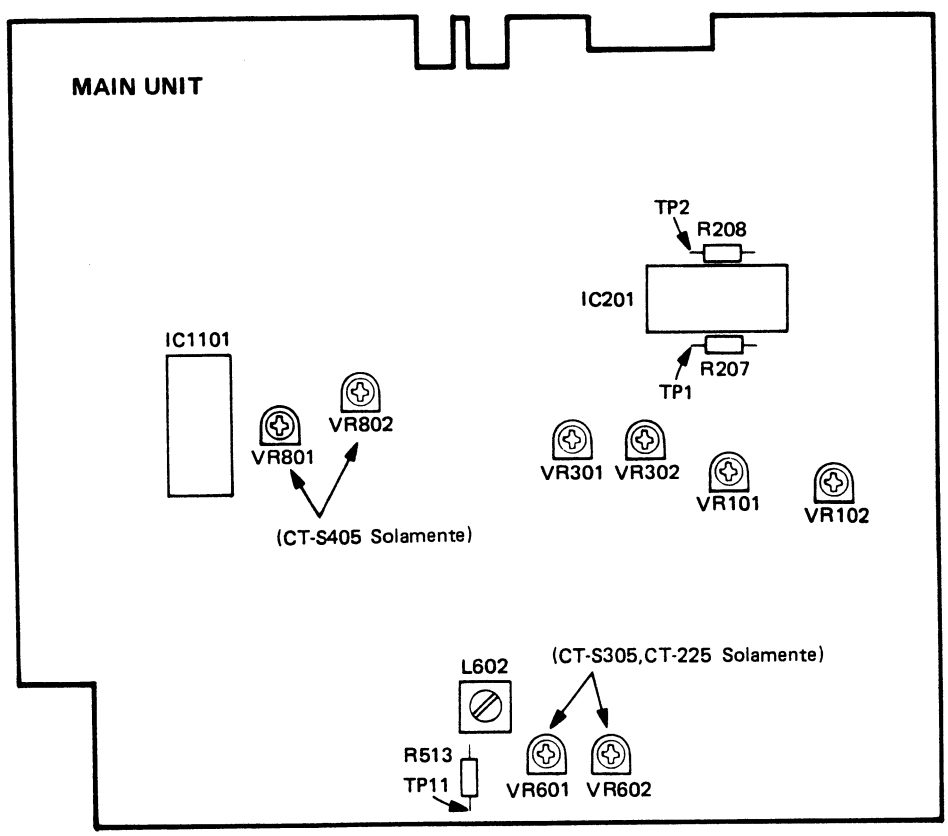


Fig. 9-2

9.2 AJUSTES ELÉCTRICOS

Condiciones de ajuste

1. Los ajustes mecánicos deben haberse completado primero.
2. La cabeza debe estar limpia y desmagnetizada.
3. Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
4. La señal de referencia es de 0 dBv=1 Vrms.
5. Conecte una resistencia de 50 kΩ (o entre 47 y 52 kΩ) en los terminales OUTPUT.
6. A menos que se especifique lo contrario, los conmutadores indicados más abajo deben dejarse en las posiciones indicadas.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Cintas de prueba

STD-331B : Ajustes de reproducción (Consulte la figura 9-3)
STD-630 : Cinta virgen NORMAL
STD-620 : Cinta virgen de CrO_2
STD-610 : Cinta virgen de METAL

Lista de ajustes

Secciones de reproducción

1. Ajuste de azimut de la cabeza
2. Ajuste del nivel de reproducción

Secciones de grabación

1. Ajuste del oscillador de polarización (CT-S405 sólo)
2. Ajuste de la polarización de grabación
3. Ajuste del nivel de grabación
4. Verificación del medidor de nivel

NOTA:
Esta unidad posee una función de selección automática de cinta.

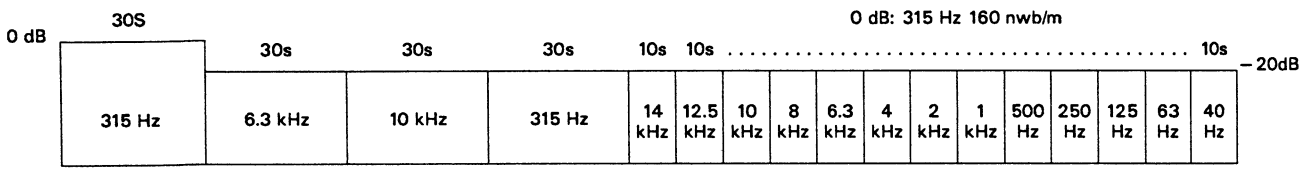


Figura 9-3 Constantes de la cinta de prueba STD-331B

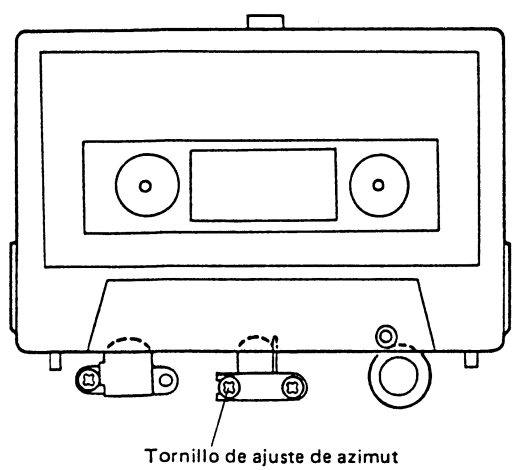


Figura 9-4 Ajuste de azimut de la cabeza

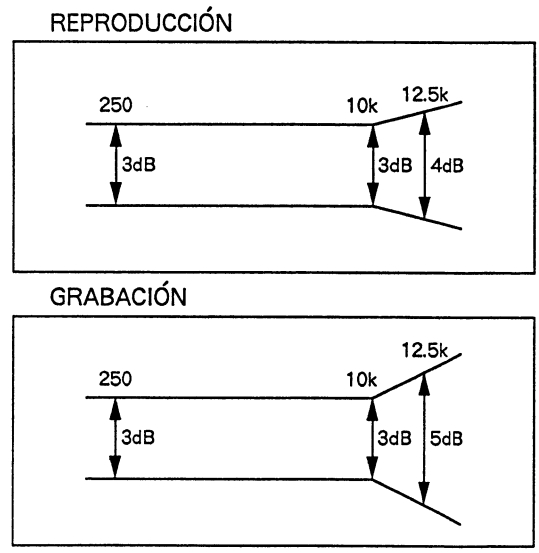


Figura 9-5 Zona permisible de respuesta de frecuencia de reproducción

SECCION DE REPRODUCCION

1. Ajuste del azimut de la cabeza

• Poner VR 101, 102 en las posiciones del centro mecánico.

N.°	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la sección de 10 kHz/– 20 dB de la cinta de prueba STD-331B.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 9-4)	LINE OUT	Nivel máximo de la señal de reproducción.	
2.	STOP	Bloquee el tornillo con su cierre una vez finalizado el ajuste.				

2. Ajuste del nivel de reproducción

• Este ajuste determina el nivel DOLBY NR y debe realizarse con mucho cuidado.

N.°	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Produzca la parte de 315 Hz/0 dB de la cinta de prueba STD-331B.	Platina I	VR 101 (Lch) VR 102 (Rch)	TP1. DOL.L (Lch) TP2. DOL.R (Rch)	– 15.2 dBv	

SECCIÓN DE GRABACIÓN

1. Ajuste del oscilador de polarización (CT-S405 sólo)

N.°	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD-610 sin señal de entrada.	Platina I	L 602	TP. 11	105 kHz ±0.3 kHz	

2. Ajuste de polarización de grabación

• Una vez finalizado el ajuste, compruebe el porcentaje de distorsión para no obtener subpolarización.

N.°	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.					
2.	REC	Grabe la señal de 315 Hz y 6,3 kHz a un nivel de entrada de – 20 dBv y reprodúzcala. (Use la cinta de prueba STD-630)	Platina I	VR 601 (Lch) VR 602 (Rch) (CT-S305 CT-225 Solamente) VR801 (Lch) VR802 (Rch) (CT-S405 solamente)	LINE OUT	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción de 6,3 kHz sea de + 1.0 dB ± 0.5 dB cuando se compare con la señal de 315 Hz.	

3. Ajuste del nivel de grabación

N.°	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.					
2.	REC PAUSE	Aplique una señal de 315 Hz/0 dBv a los terminales de entrada de línea e introduzca la cinta de prueba STD-630.	Control de nivel de grabación.		TP1. DDL.L (Lch) TP2. DDL.R (Rch)	– 15.2 dBv	
3.	STOP	Ponga el conmutador DOLBY NR en la posición ON. (DOLBY B)					
4.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-630 y reprodúzcala.	Platina I	VR 301 (Lch) VR 302 (Rch)	TP1. DDL.L (Lch) TP2. DDL.R (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de – 15.2 dB.	
5.	STOP	Ponga el conmutador TAPE SELECTOR en la posición CrO_2.					
6.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-620 y reprodúzcala.	Verifique		TP1. DDL.L (Lch) TP2. DDL.R (Rch)	– 15.2 dBv ± 1.5 dB	
7.	STOP	Ponga el conmutador TAPE SELECTOR en la posición METAL.					
8.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-610 y reprodúzcala.	Verifique		TP1. DDL.L (Lch) TP2. DDL.R (Rch)	– 15.2 dBv ± 1.5 dB	

4. Verificación del medidor de nivel

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC PAUSE	Aplique una señal de 315 Hz/−10 dBv (316 mV) a los terminales de entrada de línea.	Control de nivel de grabación	TP1. DOL.L (Lch) TP2. DOL.R (Rch)	Verifique si se encienden los medidores de nivel "0 dB" cuando el nivel de salida de la señal sea −15.2 dBv ±2 dB.	

10. IC DESCRIPTIONS

IC1101 (PD4185)

Pin No.	Name	Description
1	——	Connect to GND
2		Non connect
3	RESET	System reset terminal
4	——	Crystal connecting terminal
5		
6	KEY IN 0/$\overline{T0}$	Key matrix IN * Display matrix *
7	KEY IN 1/$\overline{T1}$	
8	KEY IN 2/$\overline{T2}$	
9	KEY IN 3/$\overline{T3}$	
10	$\overline{T4}$	
11	$\overline{T5}$	
12	LEV L	Meter level L-ch data input
13	LEV R	Meter level R-ch data input
14	KEYS	Key matrix/Display matrix SW*
15	POWER OFF	Power off reset
16	SENSING	Sensing terminal
17	SONG	Blank search input
18	——	Connect to GND
19	REMO	Remote signal input
20	——	Non connect
21	VC5V	Power supply (+5V)
22	SOLB	SOA (pin 23) voltage drop control (in FAST)

Pin No.	Name	Description
23	SOLA	Solenoid drive
24	CPM	Capstan motor drive
25	——	Non connect
26		
27		
28		
29		
30	ENCO	Encode/decode SW Decode= "L"
31	BIAS	Bias OSC SW Bias OSC ON= "H"
32	REC MUT	REC mute Active= "L"
33	LINE MUT	Line mute Active= "L"
34	S7	Key matrix and Display matrix *
35	S6	
36	S5	
37	S4	
38	S3	
39	S2	
40	S1	
41	S0	
42	——	GND

• Unless otherwise specified, pins indicated by the over-line "−" (above Pin Name) in the Name column are low active (ON) and others are high active (ON).

*When pin 14 is low level, "$\overline{T0}$ to $\overline{T5}$ (pins 6 to 11) ×S0 to S7 (pins 34 to 41)" is used for the dynamic display. When pin 14 is high level, "KEY IN 0 to KEY IN 3 (pins 6 to 9) ×S0 to S7 (pins 34 to 41)" is used for the key matrix. And then "LEV L (pin 12), LEV R (pin 13) ×S4 to S7 (pins 34 to 37)" is used for the level scanning for the level meter.

11. FOR CT−225/HEM, HB, HP, SD, CT−225−S/HEM AND CT−S405/KUC TYPES

NOTES :

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT−225/HEM, HB, HP, SD, CT−225−S/HEM and CT−S405/KUC types are the same as the CT−S305/KU type with the exception of the following sections.

Mark	Symbol & Description	Parts No.						
		CT−S305 /KU	CT−225 /HEM	CT−225 /HB	CT−225 /HP	CT−225 /SD	CT−225 −S/HEM	CT−S405 /KUC
	Main unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Display unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Transformer 1 unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
⚠	Strain relief	CM−22	CM−22B	CM−22B	CM−22B	CM−22B	CM−22B	CM−22
⚠	AC Power cord	RDG1010	PDG1003	PDG1004	PDG1006	PDG1013	PDG1003	RDG1010
⚠	FU1201, FU1202 Fuse (1.25A/125V)	REK−073	.....	.....	.....	.....	.....	REK−073
⚠	FU1201, FU1202 Fuse (T1.25A/250V)	.....	REK−101	REK−101	REK−101	REK−101	REK−101	.....
⚠	T1 Power transformer	RTT1086	RTT1087	RTT1087	RTT1087	RTT1088	RTT1087	RTT1086
⚠	Voltage selector switch	.....	.....	.....	.....	PSB1002	.....	.....
	Front panel assembly	RXX1194	RXX1176	RXX1176	RXX1176	RXX1176	RXX1195	RXX1203
	Knob (REC LEVEL)	RAC1221	RAC1221	RAC1221	RAC1221	RAC1221	RAC1222	RAC1221
	Knob (COUNTER RESET)	RAC1228	RAC1228	RAC1228	RAC1228	RAC1228	RAC1309	RAC1228
	Bottun (POWER)	RAC1240	RAC1240	RAC1240	RAC1240	RAC1240	RAC1241	RAC1240
	Knob (REC BALANCE)	RAC1337	RAC1337	RAC1337	RAC1337	RAC1337	RAC1360	RAC1337
	Knob (DOLBY NR)	RAC1343	RAC1343	RAC1343	RAC1343	RAC1343	RAC1351	RAC1343
	Knob (EJECT)	RAC1344	RAC1344	RAC1344	RAC1344	RAC1344	RAC1352	RAC1344
	Knob (◂◂, ■, ▸, ▸▸, ●, ❚❚, ⏻)	RAC1345	RAC1345	RAC1345	RAC1345	RAC1345	RAC1353	RAC1345
	Knob (REC/TIMER OFF/PLAY/REPEAT)	RAC1357	RAC1357	RAC1357	RAC1357	RAC1357	RAC1350	RAC1357
	Dolby name plate	RAH1458	RAH1458	RAH1458	RAH1458	RAH1458	RAH1484	RAH1458
	Door panel	RAH1469	RAH1469	RAH1469	RAH1469	RAH1469	RAH1485	RAH1499
	Bonnet	RXX1079	RXX1079	RXX1079	RXX1079	RXX1079	RXX1080	RXX1079
	Meter lens	RAH1459	RAH1459	RAH1459	RAH1459	RAH1459	RAH1459	RAH1489
	Connection cord (For packing)	PDE−319	.....	.....	.....	.....	.....	PDE−319
	Packing case	RHG1121	RHG1113	RHG1113	RHG1113	RHG1113	RHG1122	RHG1123
	Operating instructions (English, French, German, Italian, Dutch, Spanish, Portuguese, Swedish)	.....	RRE1025	.....	.....	.....	RRE1025	.....
	Operating instructions (English)	RRB1044	.....	RRB1044	RRB1044	RRB1044	.....	RRB1044
	Operating instructions (Spanish)	.....	.....	.....	.....	RRD1054	.....	.....

MAIN UNIT

The main units of CT−225/HEM, HB, HP, SD, CT−225−S/HEM and CT−S405/KUC types are the same as the main unit of CT−S305/KU type with the exception of the following sections.

Mark	Symbol & Description	Parts No.			Remarks
		CT−S305 /KU type	CT−225/HEM, HB, HP, SD and CT−225−S /HEMtypes	CT−S405 /KUC type	
	IC801	.....	.....	μ PC1297CA	
	Q801, Q802	.....	.....	2SA1309A	
	Q803	.....	.....	DTC124ES	
	D1102−D1104	1SS254	.....	1SS254	
	D801, D802	.....	.....	1SS254	
	C1105	CKCYF473Z50	.....	CKCYF473Z50	
	C801, C802	.....	.....	CGCYX103K25	
	C803, C804	.....	.....	CKPUYB821K50	
	C805, C806	.....	.....	CFTXA223J50	
	C807, C808	.....	.....	CGCYX473K25	
	C809, C810	.....	.....	CCCSL101K500	
	C811, C812	.....	.....	CKCYB471J500	
	C813	.....	.....	CKPUYB101K50	
	C814	.....	.....	CEASR10M50	
	C815, C819	.....	.....	CEAS100M50	
	C816	.....	.....	CEAS4R7M50	
	R513	.....	.....	RD½LF010J	
	R801, R802, R806	.....	.....	RD⅙PM223J	
	R803, R804	.....	.....	RD⅙PM184J	
	R805	.....	.....	RD⅙PM153J	
	R807, R808	.....	.....	RD⅙PM472J	
	R809	.....	.....	RD⅙PM103J	
	VR801, VR802	.....	.....	VRTB6VS223	
	L602	RTD1017	RTD1017	RDT1039	
	L801, L802	.....	.....	RTD1030	
	JA1101, JA1102	RKN−071	.....	RKN−071	
	C609, C610	CCCSL101K500	CCCSL101K500	.....	
	R651	RD½LF201J	RD½LF201J	RD½LF331J	
	R652	RD½LF151J	RD½LF151J	RD½LF221J	
	VR601, VR602	VRTB6VS104	VRTB6VS104	.....	

DISPLAY UNIT

The display units of CT−225/HEM, HB, HP, SD, CT−225−S/HEM and CT−S405 /KUC types are the same as the display unit of CT−S305/KU type with the exception of the following sections.

Mark	Symbol & Description	Parts No.			Remarks
		CT−S305 /KU type	CT−225/HEM, HB, HP, SD and CT−225−S /HEM types	CT−S405/ KUC type	
	D2401, D2403−D2412, D2419, D2420 D2421, D2422 R2414, R2415	SEL4914A−X	SEL4310E	SEL4914A−X SEL4214S RD⅛PM331J	

TRANSFORMER 1 UNIT

The transformer 1 units of CT−225/HEM, HB, HP, SD, CT−225−S/HEM and CT −S405/KUC types sre the same as the transformer 1 unit of CT−S305/KU type.

12. SPECIFICATIONS

Systems ..... 4 track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head × 1
"Ferrite" erasing head × 1
Motor ..... DC servo capstan motor × 1
Wow and Flutter ..... No more than 0.075% (WRMS)
± 0.19% (DIN)
Fast winding Time ..... Approximately 110 seconds
(C-60 tape)

Frequency Response (± 6 dB)
−20 dB recording:
Normal tape ..... 25 to 16,000 Hz
Chrome tape ..... 25 to 16,500 Hz
Metal tape ..... 25 to 17,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 57 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.7% (0 dB)
Input (Sensitivity)
LINE (INPUT) ..... 63 mV (Input impedance 50 k Ω)
Output (Reference level)
LINE (OUTPUT) ..... 316 mV (Output impedance 3.4 k Ω)
Headphone ..... 0.25 mW (load impedance 8 Ω)

Subfunctions

- DOLBY B-type and C-type NR Systems
- DOLBY HX PRO (CT-S405 only)
- 3-position automatic tape selector (NORM/CrO_2/METAL)
- Music search over ± 15 selections
- Automatic space recording mute
- 7 segments/channel LED level meter
- Timer Recording/Playback
- System remote control compatible (U.S., Canadian models only)
- Repeat playback
- 3-digit mechanical tape counter

Miscellaneous

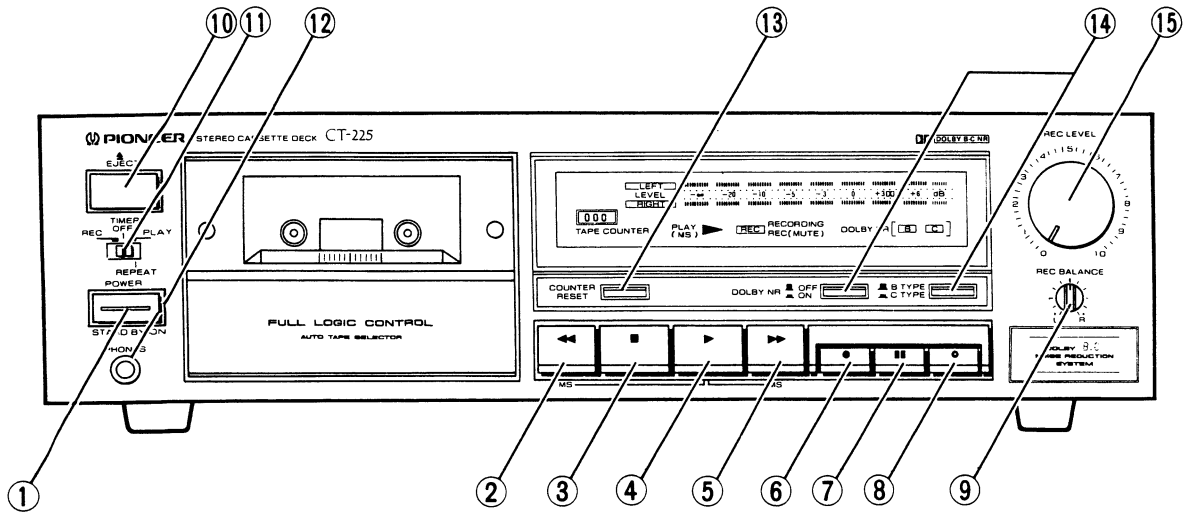
Power Requirements
U.S., Canadian models ..... AC 120V, 60Hz
European model ..... AC 220 Volts ~ , 50/60 Hz
U.K., Australian models ..... AC 240 Volts ~ , 50/60 Hz
Other destination models .....
AC 110V/120−127V/220V/240V,
50/60 Hz (switchable)
Power Consumption
U.S., Canadian models ..... CT-S305 ; 13W
CT-S405 ; 14W
European, U.K., Australian models 14W
Other destination models 14W
Dimensions ..... 420(W) × 120(H) × 272(D) mm
16-9/16 (W) × 4-3/4 (H) × 10-11/16 (D) in
Weight (without package) ..... 3.6 kg (7 lb 15 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
System remote control cord (U.S., Canadian models only) 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

13. PANEL FACILITIES



The illustration shows model CT-225.

① POWER (STANDBY/ON) switch

NOTE:
The POWER switch turns off the transformer secondary circuits only, and so even at the STANDBY position, the unit is connected to the mains as long as the power cord is connected to a power outlet.

② Rewind button (◀◀)

To rewind the tape in the direction of the arrows.
When this button is pressed once during playback of a selection, the same selection will be played again. If pressed in the blank between two selections, the first selection before the current tape position will be played. The unit will skip one selection in reverse direction for each time the ◀◀ button is pressed

③ Stop button (■)

To stop all operations.

④ Playback button (▶)

To start playback.

⑤ Fast forward button (▶▶)

To fast-forward the tape in the direction of the arrows.
When pressed during playback, the unit will skip one selection in forward direction for each time the ▶▶ button is pressed.

⑥ Recording button (●)

When the recording (●) button is pressed, the unit is set to recording standby mode.
Press the pause (❚❚) button or playback (▶) button when ready to record.
The unit will not enter the recording standby mode if a cassette with the erasure prevention tabs removed is loaded.

⑦ Pause button (❚❚)

To stop tape transport momentarily during recording or playback. Press the button again to resume operation. This can also be done by pressing the playback (▶) button. This button does not work during fast-forward and rewind.

⑧ Record muting button (O)

Press this button during recording to create a blank portion of approx. 4 seconds on the tape. The unit will then enter the recording standby mode.

⑨ REC BALANCE control

Balancing the recording level between left (L) and right (R) channels.

⑩ EJECT button (▲)

Press to open the cassette door after you have pressed the stop button (■) and the tape has stopped.

⑪ TIMER mode selector

OFF:

Normally, be sure to leave the switch in this position.

REC:

For timer recording

PLAY/REPEAT:

For timer playback or for repeat playback.

- Recording or playback may suddenly start when turning the power on with this switch in the REC or PLAY position.

⑫ PHONES jack

⑬ Tape COUNTER RESET button

Resets the tape counter reading to "000".

⑭ DOLBY * NR switches

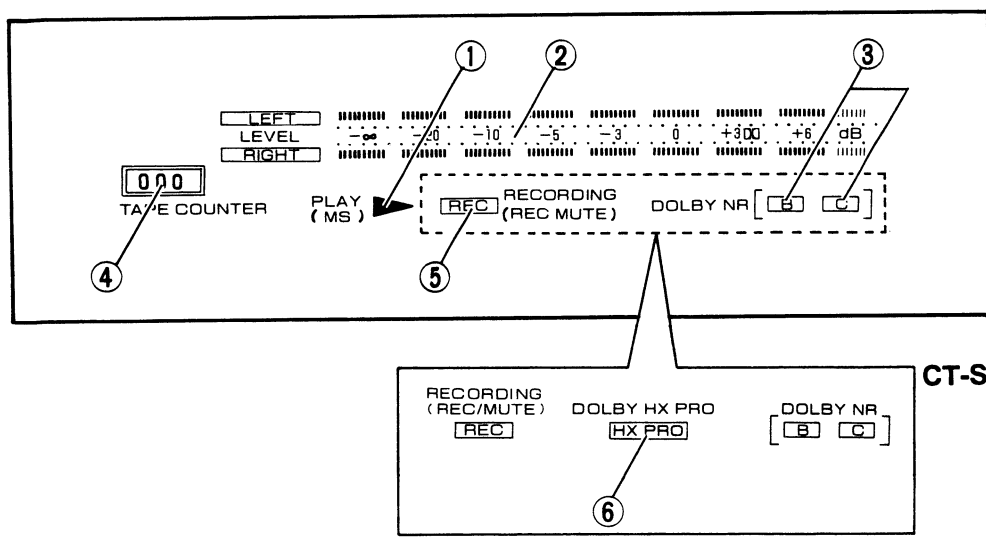
Set these switches to ON and B-TYPE or C-TYPE for recording with the built-in Dolby Noise Reduction Systems and for playback of tapes which have been recorded using the Dolby Noise Reduction Systems.
For other tapes, set the left DOLBY NR switch to OFF.

** [HX PRO is CT-S405 only, not provided in other models.]*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY," and the double-D symbol ◻◻ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑮ REC LEVEL control

OPERATING DISPLAY



CT-S405 only

① Play indicator

▶: Lights during playback and recording.
The indicator flashes slowly in the pause mode and fast during music search.

② LEVEL meter

LEFT: Left channel.
RIGHT: Right channel.

③ DOLBY B/C NR indicator

Indicates the selected Dolby Noise Reduction Systems, B-type or C-type.

④ TAPE COUNTER

⑤ REC indicator

Lights during recording.

⑥ DOLBY HX PRO indicator (CT-S405 only)

Lights up when the POWER switch is pressed.